Chemical Week

May 31, 1952

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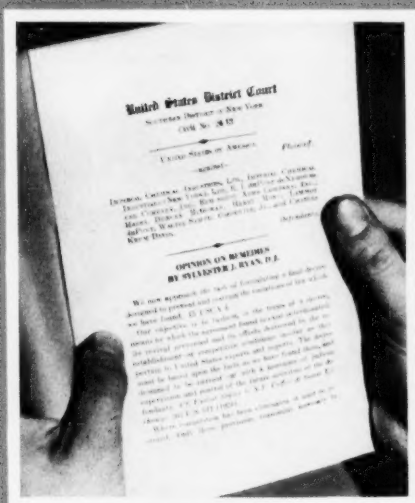
United States District Court
Southern District of New York

OPINION ON REMEDIES
BY SYLVESTER J. RYAN, D.J.

Big government gets set to batter "big business"; this year's target: Du Pont . . . p. 11

Watch upcoming tariff test case; significance: legal loophole for import flood . . . . . p. 34

Slash plant maintenance costs by checking what you do against this new yardstick . . . . . p. 39

Corn Products' Elder: His glucuronic research pays off . . . . . p. 26

Here's what's behind, what looms in naval stores turmoil . . . p. 53

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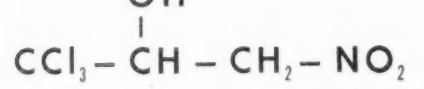

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Molecular Weight	**208.4**
Boiling point (approx.), 5 mm Hg	**120°C**
Melting point	**40°C min.**
Specific gravity, 45/4°C	**1.605**

SEND FOR TECHNICAL DATA SHEET S-25
for additional details and typical reactions.

Our technical staff will be glad to discuss and advise on your particular application and requirements for TRICHLORONITROPROPANOL. Requests on your letterhead for samples and Data Sheet S-25 will receive our prompt attention. Please address inquiries to:

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Chemical Week

Volume 70 Number 22

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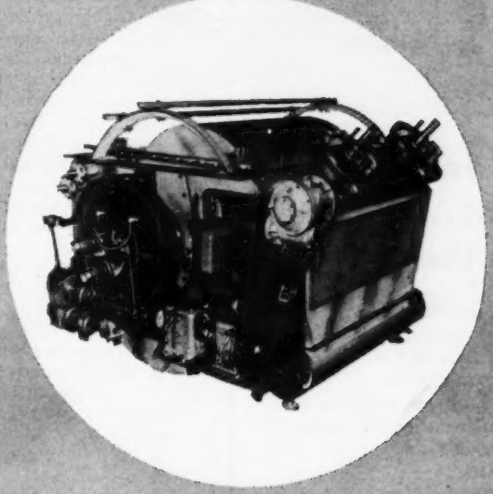

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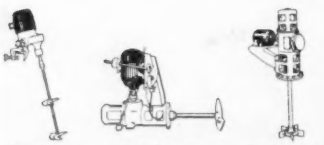

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OPINION . . . . .

Gas Chemicals

TO THE EDITOR: . . . While I do not agree with your CW Report "Gas Chemicals-Decline and Fall?" (May 10) completely, it is certainly interesting and provocative.

One of the subjects not covered very thoroughly was the possibility of manufacturing C_2 and C_3 hydrocarbons for introduction into a gas stream and transmission north for subsequent removal. This inexpensive method of transporting the valuable C_2 and C_3 raw materials would enable the gas companies to replace inexpensive methane with a much more expensive raw material, equalling the rate of return obtained by the household sale of methane.

Another possibility which was not developed very extensively is that of a chemical processor owning his own gas fields and trading gas in Texas for delivered gas in the north. A variation of this, of course, is owning oil fields and trading oil for gas.

In general, however, the article is an excellent one . . .

PARKER FRISSELLE
Manager
Market Research
The Dow Chemical Co.
Midland, Michigan

TO THE EDITOR: I agree with the three major and general conclusions of your CW Report "Gas Chemicals—Decline and Fall?" (May 10). It seems worthwhile to point out, however, that generalization cannot always give the complete picture and may often cause one to overlook the most important item.

For instance, I believe that the well-head price for new gas production today is quite significantly higher than shown on Chart #2, which presumably only gives the average well-head price. This average is, of course, composed of a majority of prices based on contracts of long standing, many of them made before the present rise of gas costs.

By the same token, coal-based gas will not appear on the scene when the *average* gas price approaches that of coal based gas but rather when the most expensive part of the gas production of significant volume equals in price the cheapest gas which can be made from coal. The many routes by which one can obtain gas from coal either as a by-product or eventually as the main product differ widely. There is no such thing as "*the* cost of synthetic gas". Also, it is important that most industrial chemical users of gas don't want methane but rather ethylene, hydrogen, CO, etc. Many of these gases can be obtained from coal at a cost much less than one obtains methane from coal.

I believe the picture is so complex that predictions are perilous. The current very rapid rise in the well-head price of gas (for new gas production) together with the intense interest in gasification promises an early reversion in the present trend to natural gas-based chemical plants.

I would guess also that this trend will first move into a direction where both coal and gas will be used as raw materials side by side, each fuel contributing according to its chemical nature.

E. H. REICHL
Research Manager
Pittsburgh Consolidation Coal Co.
Library, Pa.

TO THE EDITOR: . . . I have read your excellent article "Gas Chemicals—Decline and Fall?" . . . It is a very good treatment of the subject. . . .

HENRY L. HILLMAN
Vice President
Pittsburgh Coke and Chemical Co.
Pittsburgh, Pa.

Exit Hustlers

TO THE EDITOR: We have read, with mixed after reactions . . . "Merry-Go-Round Slows Down" . . . (May 10).

This news article would probably have been slanted in a different manner if the author . . . had been given a sample of any standard chemical, representing a ton or so, on which you had set a delivered price 10% under prevailing market, and . . . provided with a list of ten established users of the product . . . told to go forth and sell same.

There is a great deal of snobbery in the business world and . . . it is being deepened and perpetuated. Buyers are being insidiously "Trained," consciously or unconsciously . . . to judge a product on the basis of whether the seller owns a plant that covers a square mile and has over a million dollars invested, rather than on the basis of what the product will do for them and at what cost.

Your own records . . . will disclose . . . that most products have been established in the market places by so-called "distributors," often by a single individual with knowledge as to potential uses of a product and "know how" as to best method of getting a desired end result.

Too often the basic "producer" cuts the ground from under the feet of

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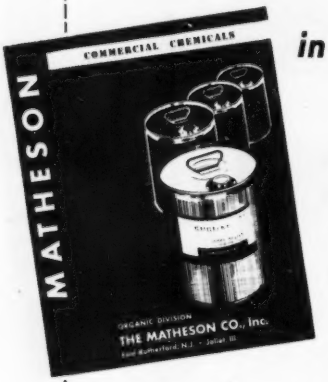

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OPINION . . . . . .

the pioneering "distributor" after he has established a market by creating an organization for "direct" selling at a lower price. Price being equal, those your writers often describe, in a patronizing manner as "re-sellers," will outsell the "producers" organization 5 to 1.

There are more of them . . . most of them have greater knowledge of end users' requirements . . . more intimate contacts . . .

The editor who added the footnote to the article must have sensed the "slur" of "re-sellers" in general, or he wouldn't have added the footnote.

BURTON H. GREENWOOD
The Burtonite Company
Nutley, N. J.

TO THE EDITOR: Whoever wrote "Merry-Go-Round Slows Down" (May 10) . . . [reporting the problems of resellers and the exodus of many of the "fast buck" office-in-the-hat hustlers] had a thorough and correct grasp of his subject . . .

My congratulations . . .

JOHN A. CHEW
President
John A. Chew, Inc.,
New York, N. Y.

Elastic Cotton

TO THE EDITOR: In your Newsletter of May 3 you say: "A new elastic cotton can be substituted for rubber in surgical bandages. A recent Army order for 10 million bandages will save $5 million . . . provide market for 750,000 lbs. of caustic . . ."

I thought that you might not know that this improved bandage is, we assume, that invented by Charles F. Goldthwait (U. S. Patents 2,379,574 and 2,404,837) and his colleagues of the Southern Regional Research Laboratory. . . .

C. H. FISHER
Director
Southern Regional Research
Laboratory
New Orleans, La.

Thanks, Reader Fisher. Although we knew it, we neglected to mention SRL's role as developer of the product.—ED.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

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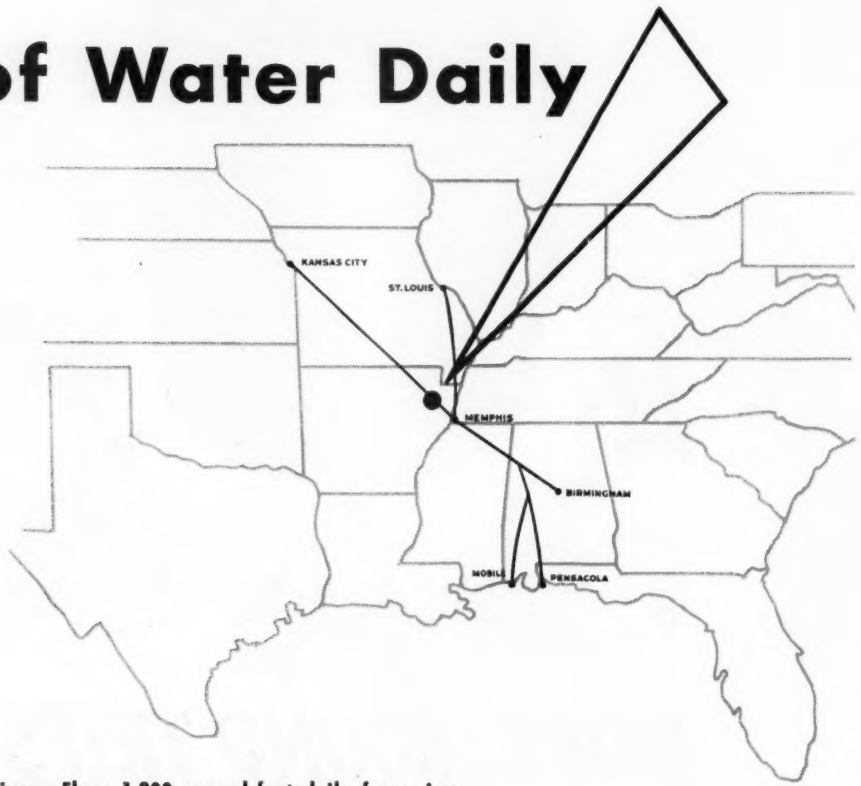

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NEWSLETTER

"Back to work," is an echoed and re-echoed phrase among the Southwest's oil and chemical workers this week.

Among the first to settle was Atlantic Refining, at Port Arthur. Concessions to the striking CIO employees included a 15¢-an-hour across-the-board increase, higher shift differentials, a 7¢ retroactive pay boost dating back to last November.

Next in line for a puff at the peace pipe were Phillips Chemical and Sinclair Refining. The pattern was the same: 15¢ hike, higher pay for night work, retroactive pay when necessary to make everything even.

Humble Oil & Refining has come through with a second offer paralleling the successful settlements, and other companies are stepping one by one into line.

Unlike the steel stalemate, the oil strike was being settled by piecemeal compromise. The unions' initial demands were 25¢ an hour; the companies' initial offers were in the 8¢-12¢ range.

Effects of the oil strike worry the British as well as U. S. consumers. Anglo-Iranian Oil Co. points out that the British depend on U. S. for most of their aviation and diesel fuel, fears that even with the resumption of output British aviation may feel a pinch.

Another strike ended as AFL workers at Lederle Laboratories (Pearl River, N. Y.) capitulated after a six-day stoppage marked by mass picketing and helicopter feeding of plant-bound nonstrikers.

Over 400 scientists and other workers remained in the plant to feed the half-million experimental animals used in research.

The company granted 8¢ an hour, did not grant a union shop demand.

But not all production difficulties are man-made. Just as effective as a picket line is a flaming gasoline-loaded vessel that has tied up traffic on the Chesapeake-Delaware Canal for a week.

Stymied by the fire—which may last a week or two longer—is inter-city movement of sulfuric acid in the Baltimore-Wilmington-Philadelphia area, which produces a full quarter of the nation's acid.

Spirited trading was in progress this week as producers and users, heretofore spliced by long-term contracts, swapped partners to circumvent the traffic block. Among the affected firms: Mathieson, Davison, General Chemical, Du Pont, Atlantic Refining, several small fertilizer makers.

Reason the Coast Guard can't put the fire out: Attempts may cause the fuel to spread on the water, create a far more serious hazard.

Atlas Powder Co. isn't going to take the bread standards (CW Newsletter, May 17) lying down. It filed a petition with the U. S. Court of Appeals in Philadelphia to review sections of the order and asked for a stay of the effective date beyond August 13, as called for in the order, until the Court has decided on the petition.

Atlas' contention: The Federal Security Administrator didn't apply the same criteria to all competing emulsifiers and he wouldn't reopen the record to receive new evidence.

Meanwhile, FSA's oleomargarine standards are also in the news. Final standards are effective August 21. As in the tentative ones issued last fall, synthetic vitamin A and natural vitamin A from sources other than fish liver are approved for use.

Two antioxidants developed by Best Foods—isopropyl citrate and stearyl citrate—are also approved. The tentative standards included only the isopropyl ester.

What is Krilium? Monsanto categorically denies that it is now a polyacrylate, is still mum on the actual composition.

Less reticent is American Cyanamid Co., which admits that its new soil conditioner and stabilizer, Aerotil, is a hydrolyzed polyacrylonitrile. The material was just introduced last week.

Aerotil is sold in two forms—soluble, high-concentration flakes for sprinkling, powder for raking in—to formulators who will market it under their own trade names.

Cyanamid recommends an application rate of 1 lb. per 100 sq. ft. of soil to treat a half-inch depth. That's almost exactly equivalent, on a volume basis, to Monsanto's recommendation of 5 lb. of Krilium per 80 sq. ft. of soil to treat a three-inch depth.

You can expect a barrage of claims and counter-claims as various manufacturers defend their widely varying recommendations.

Another coal tar producer (CW Newsletter, May 10) is now producing isonicotinic acid in commercial quantities: Barrett Division of Allied Chemical & Dye says it can supply enough to meet medical requirements for isonicotinyl hydrazide, the anti-TB derivative.

Finding civilian jobs for 225 scientists in uniform due to be "separated" this year is the aim of a placement committee organized at the Army Chemical Center (Edgewood, Md.).

The committee is inviting chemical firms to interview the separatees at the Center. First firm to respond: Du Pont, which spent three days conducting interviews there.

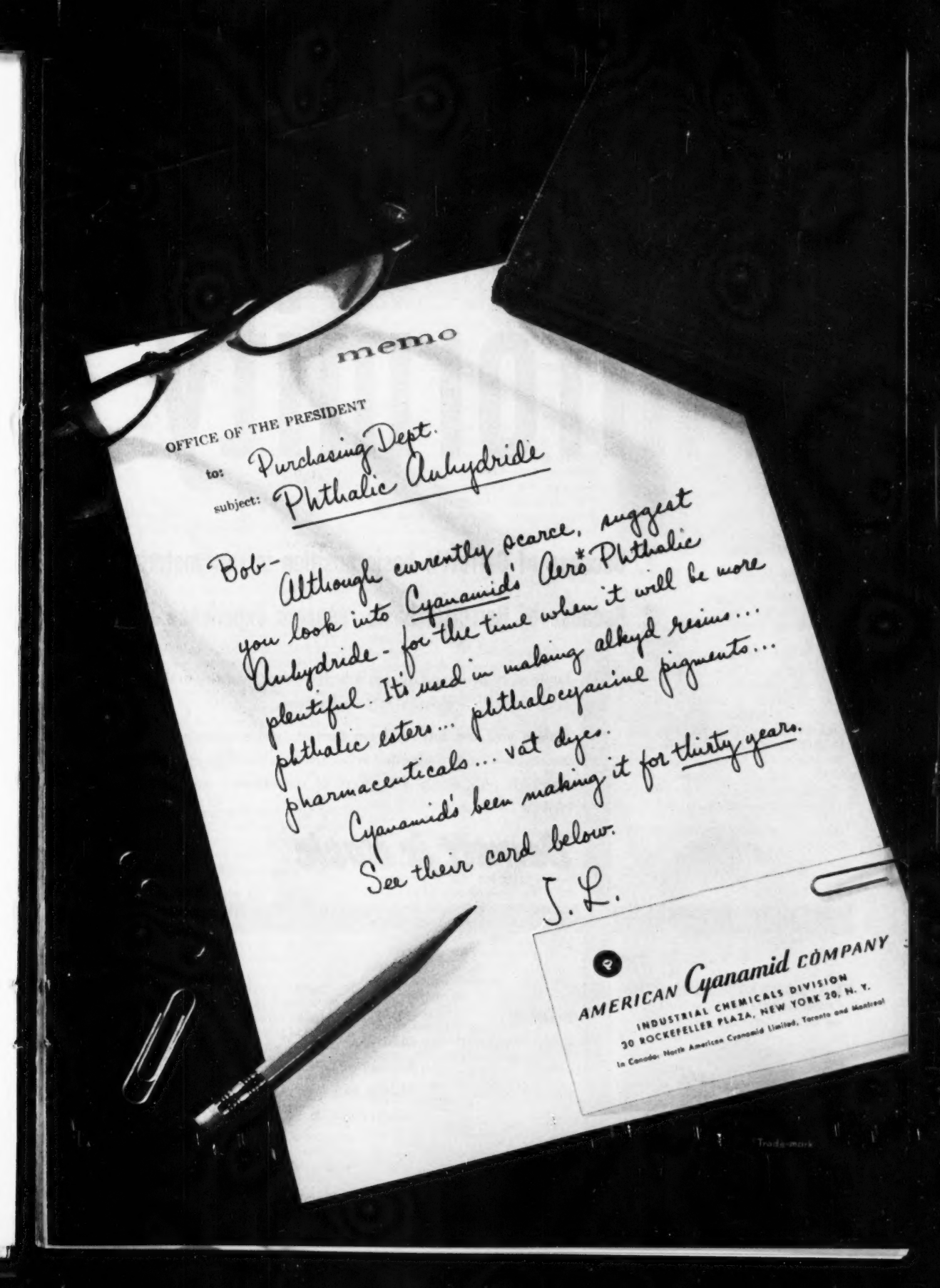
Going back to his old job this week with Esso Standard is Osgood V. Tracy, director of NPA's Chemical Division. Leaving after a close-to-nine-months' stint, he will be replaced by George E. Holbrook, on loan from his job as assistant director of Du Pont's development department.

Puerto Rico's chemical industry will lose a competitive advantage as a result of a U.S. Department of Labor ruling which sets a minimum wage of 75¢ an hour in the fertilizer and synthetic hormone segments, 51¢ in others. Present minimum wages range from 25¢ to 40¢.

The petroleum industry is protesting with one voice the tax load it carries. Through the American Petroleum Industries Committee, it points out that it paid $4½ billion in 1951 federal, state and local taxes—$1.68 per barrel of crude compared with $1.12 per barrel in 1945.

One likely reason for the clamor: to counteract efforts in Congress to hike taxes by changing the depletion allowances.

. . . The Editors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BUSINESS & INDUSTRY . . . . .

Tough Decree Looms

The opinion on remedies in the Du Pont—ICI anti-trust action, handed down last week by Federal Judge Sylvester J. Ryan, is tough, but not as tough as the Government wanted.

Compulsory licensing of patents, divulging of technology and know-how, divestiture, and judicial restraint on business relations between the defendants for specific periods, are among the remedies set forth in the opinion.

After seven long years, much time and much money, Du Pont and Imperial Chemical Industries Ltd. got the word last week on what is in store for them as District Judge Sylvester J. Ryan handed down his *Opinion on Remedies.*

Convicted late last year of a conspiracy to divide world markets, which acted as a restraint on American foreign trade—an act illegal under Section 1 of the Sherman Anti-Trust Act—the companies now await the final decree, which should come within two weeks.

In essence the Judge's detailed, carefully worded opinion is a course between the decrees proposed by the contending parties. Not as tough as the Government had asked, nor as unmindful of the companies' contributions to the well-being of the U.S. and Great Britain, it is nevertheless a much harsher set of remedies than suggested by the companies.

Competitive Conditions: Ryan's aim, simply stated: ". . . to fashion, in the terms of a decree, means by which the agreement found to exist is terminated, its revival prevented and its effects destroyed insofar as they pertain to United States exports and imports."

To do this the Judge indicated that the decree will contain injunctions against the defendants' repeating the same acts that brought the Government's action, and specifically prohibiting Du Pont from entering into agreements limiting its exports throughout the world. In addition Du Pont is to be ordered to file annual reports for five years showing what it is doing to increase its foreign trade.

But Ryan indicated that, in his opinion, these general injunctive provisions were not enough to assure the end, and non-revival, of the conspiracy. Specific provisions as to patents, technology and jointly-owned companies had to be made, he said. To justify the inclusion of technology and know-how in the decree, the Judge said that ". . . as to many products, control resided in their technology and trade know-how. . . . We conclude that restraints must be imposed upon not only the exercise of the patent monopolies but also with respect to technology and know-how, as well as their commercial activities."

Patents, Know-How: In pointing out that the decree would contain provisions for compulsory licensing of patents, Ryan said, "We have found that the exchange of patents, processes and know-how served as direct instruments used by the conspirators to achieve their unlawful purpose. . . . The rights of the patentees were exercised for a purpose not intended by our patent laws and in derogation of vested and paramount rights of the public."*

The result of the Judge's deliberations is, apparently, that Du Pont and ICI's U. S. patents issued before June 30, 1950, which cover products common in manufacture to both of them, or to either and any of the jointly-owned companies, will be directed to be licensed at a reasonable royalty. Along with this the Judge indicated that some provision would also be made to require compulsory supplying of know-how and technology to go along with the licensed patents.

Not accepted were two of the Government's major demands: compulsory licensing of *all* patents (including future patents not involved in the conspiracy) and royalty-free licensing of the nylon patents.

With regards to future patents the Judge showed his strong antipathy to what would amount to discouraging all incentive. "We may not take from the defendants all incentive for future endeavour by depriving them in advance of the rewards which might come to them from future patents and technology."

In the matter of royalty-free licensing the Judge showed strong doubts as to the Court's constitutional right to do what amounted to destroying the total value of the patent.

ICI Too: To make sure of its aim to restore international competition in order to remove the restraints on American foreign trade, the Government had asked for a provision directing ICI to grant immunity under its

GREENEWALT: "No comment."

RYAN: "Harsh remedies needed."

* To back this up the Judge quoted, "The limited monopolies granted to patent owners do not exempt them from the prohibitions of the Sherman Act and supplementary legislation." *Standard Oil Co. v. United States,* 283 U. S. 163, 169 (1931).

foreign patents which correspond to the U. S. patents which have been made subject to compulsory licensing. ICI contended that this could not be done under British law. In decreeing on this, Ryan apparently means to so direct ICI, and let the British courts decide whether to recognize his judgment or not.

In this connection the existing agreements between the companies with respect to nylon and polyethylene will be ordered cancelled in the decree. On the other hand neoprene was not the subject of agreement, is not to be compulsorily licensed, and the general patent agreement of June 30, 1948, is not only not cancelled, but is ordered to be left standing, accepted as an effort to remedy illegal conditions.

Joint Companies: The Government had asked complete divestiture of all jointly-owned subsidiaries. The companies had asked for simple restrictive and injunctive provisions. The result is that three major companies—Canadian Industries Ltd., Duperial-Argentina, and Duperial-Brazil—are to be divested, but at this time two smaller ones—CSAE and CBC (joint between ICI and Remington)—are not.

In invoking "the harsh remedy of divestiture" the Judge found that ". . . the jointly owned companies were either organized or acquired and used to accomplish the ends of an illegal agreement and understanding. . . . Although divestiture . . . is a harsh remedy, its application is made necessary because of the continued and defiant purpose of the defendants to violate the anti-trust laws."

No Comment: Du Pont's reaction to the entire situation is to remain silent. Legally the decree has not yet been handed down, and therefore it would be technically improper for the company to speak about the case. But the company is reluctant even to discuss the possible implications of the decree if it parallels the opinion, as it almost certainly will. When asked, company president Crawford Greenewalt told CW, "No comment."

Possibly Du Pont's lawyers are hoping for a considerably softer final decree. This appears doubtful at present, in which case Du Pont and ICI will certainly appeal. If it is softened very much, it will be the Government which will appeal.

EXPANSION . . .

Sulfur: Texas Gulf Sulphur has begun production at its Spindletop (Tex.) Dome. The dome is of significant size, since it is being mined via the Frasch process, but the estimated 300,000 ton/year production doesn't class it among the biggest producers.

•

Tributyl Phosphate: Ohio-Apex (a Food Machinery & Chemical division) has begun commercial production of tributyl phosphate at Nitro, W.Va.

•

Perlite: Kaiser Gypsum has purchased the Dant, Ore., perlite mine and processing facilities of the Dant and Russell (Portland, Ore.) Dantore division.

•

Catalytic Cracker built by Canadian Oil at Sarnia, Ont., has gone on-stream. All parts of the $22 million petroleum refinery are scheduled to be in operation within a month.

•

Phenolic Resins: Marshall Eclipse division of Bendix Aviation has contracted with Blaw-Knox for a resin plant at Green Island (Troy), N.Y. Bendix will take most of the production of phenolic and other resins for its own captive use.

• Incidentally, issuance of a tax write-off to Bakelite for construction of a phenolic resin plant at Marietta, Ohio (*p. 14*), marks a geographical diversification—Bakelite previously has produced the resins only in its Bound Brook, N. J., facilities.

COMPANIES . . .

St. Joseph Lead has asked its stockholders to approve a change in its incorporation certificate which would remove any possibility of legal complications if it diversifies into oil and natural gas production. According to its charter, St. Joseph can develop mineral deposits, but whether this includes oil is legally moot.

Philosophy behind the action is this: With present taxes as they are, the company feels investment in petroleum producing is wise, since actual cost to stockholders is 18¢ on the dollar. Profits would be long-term, and so could easily come at a time of lower taxes.

• The company does not plan to invest to such an extent that the overall business character of the company would be changed.

•

Dow Chemical's and Sun Oil's Canadian subsidiaries have traded some real estate. Sun has sold Dow a 125-acre site near Sarnia, Ont., immediately north of a 200-acre site which Dow sold Sun. The area now owned by Dow is adjacent to its present plant near the St. Clair river. Sun will use its new site for a refinery.

•

Hooker Electrochemical has borrowed $20 million from a group of East Coast insurance companies. Interest will be 3.75%, with payments on principal due between 1957 and 1977.

The company has already drawn $10 million, of which $6 million has been used to retire outstanding bank loans. The remaining $4 million, and the as yet undrawn $10 million will go to finance plant enlargements and improvements at Niagara Falls and Tacoma (*CW, May 24*), as well as its Michigan facilities (*CW, May 10*).

•

Federated Petroleums Ltd. plans to sell a million additional shares of common stock, half in Canada and half in the United States. At present prices, the offering would bring in about $11 million.

•

Lone Star Cement has asked the Securities and Exchange Commission permission to withdraw its registration statement covering the proposed sale of 154,209 shares of common stock (*CW, Apr. 19*).

•

Liquid Carbonic preferred stockholders have authorized the sale by the company of $6 million in long term debentures to Metropolitan and Mutual Life Insurance companies. Bank loans will be refunded with $3 million, with the other $3 million available to be drawn on through Dec. 20 for use as working capital.

•

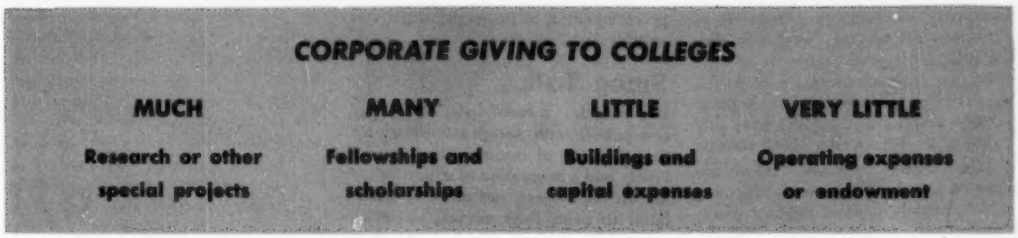
Apex Smelting, which has just been granted an 85% tax writeoff for a $435,000 plant to manufacture aluminum-titanium-silicon alloys in Lane County, Ore., now has plans to sell 3,500 shares of common stock to add approximately $110,000 to working capital.

• Earlier this month, Apex sold $2 million in 4% notes, due serially through 1964. Apex last year was one of the companies which was in the running as Government-sponsored competition to the aluminum big three, but was unable to raise the necessary money.

•

Continental Can will discontinue its plastics division, which has been operating a plastics molding, laminating and fabricating plant at Cambridge, O. Said President Hans A. Eggerss: "The financial loss sustained by the company at the Cambridge plant over the years, plus the prospects of continued loss, do not justify further operation."

The company has been operating facilities in Cambridge since 1944 when it acquired the molded plastics division of the Reynolds Spring Co. Last year, Continental reported $17.5 million in sales of plastics and miscellaneous items.



Sowing for a Future Harvest

Corporation executives—at least those concerned with giving away money—and college presidents—concerned with getting it—are buzzing in anticipation this week. Word is out that a new Beardsley Ruml book is coming off the press. Subject: corporate giving.

To many chemical executives, Ruml has been an *enfant terrible* since the National Planning Association last August published "The Five Percent," which he and Theodore Geiger wrote.

The booklet pointed out that, with taxes what they are, corporations should put the maximum allowable 5% of pre-tax profits aside for giving. A company committee or a company-sponsored non-profit foundation should be set up for administration.

While Ruml is certainly no *enfant* in age or size, nor really *terrible* in his ideas, his proposal has hardly made life easier for industrial relations men.

Said the public relations vice president of one chemical company: "Now everybody who comes around automatically thinks we're giving 5% and points out how little of this his own request would be. At least he's usually polite in calling us bastards when we say 'No.'"

"No" Knowhow: To chemical companies pondering such a program, there are several strikes against a 5% program.

First, while gifts to such as colleges are constructive, they are also extravagances of a sort—and these can't be condoned by a cheap, excess profit-wise dollar. This feeling, rather widespread in industry, is succinctly summarized by Dow's Leland Doan. He puts it this way: "We won't evade taxes by spending the money first . . . we must expound to our people that the greater the tax, the greater the necessity for . . . economy."

A second deterrent is that in all but family- and closely-held companies, stockholders may object to spending money for projects that may not bring direct benefit to the company. By this train of thought, if a project is a business expense, it is all right; if a contribution, it is not. Different people draw the line between these at widely divergent places.

Third, chemical companies, by and large, have done a reputable job in public giving, though to an observer, the exact degree depends on what is a business expense and what is a contribution.

But despite any statements to the contrary, Ruml's ideas have sparked further changes in the chemical giving pattern.

Mechanical Problem: Corporations, on the purely organizational level, are setting up formal committees to consider requests for gifts. Many are at least attempting to set up written standards for accepting such requests. Some—Pittsburgh Plate Glass, for example—are in the process of setting up non-profit foundations for giving, as Ruml recommends.

Whatever the mechanics, the actual pattern of giving to educational institutions is in flux.

Not so many years ago, the emphasis was on buying research time. A company would allot a specific amount of money to a college for a specific job—usually one which it could not efficaciously do in its own laboratories. This is now not as important as it once was.

Scholarships and fellowships once were made primarly for projects which directly interested the company. Now restrictions on the subject to be investigated are easing. There is still a direct money interest: finding a good researcher who can fit into the company after graduation.

Another relatively new proposition is giving the college itself a money grant, free of any strings, when one of its students receives a scholarship.

More companies are now contributing money to schools without specifying a project. Some companies insist that the money be used for fundamental research, rule out work on direct commercial applications. Other grants are in a specific field, e.g., fluorine chemistry. Of course, much of the money goes to large schools, though corporations are becoming more aware of the needs of smaller institutions—both technical and liberal art—located near their different plants and centers of operations.

Variant View: There are a few noteworthy variations on this type of giving: Dow finances a year-long study by a Rensselaer Polytech professor on how our business system operates. Du Pont last year picked up a $15,000 tab, allowing a Harvard chemistry professor to spend a year on research, free from teaching duties. Monsanto, with its policy of bringing a group of college professors in to study and make recommendations on company management, is another. Generally, though, only large givers with long backgrounds in more usual forms of philanthropy have such policies.

Colleges themselves haven't been inactive in thinking up new gift ideas. The Ohio Foundation of Independent Colleges, now 13 months old, was set up to help cover the operating deficits of non-tax-supported schools in the state. At present, 22 of 36 eligible schools are members. Main appeal is to Ohio industries (and Standard of Ohio, Cooper Bessemer, and Firestone each contributed $25,000 or more the first year).

Some executives of multi-state corporations are somewhat wary of such programs when thinking of consistent giving. Some states would get larger contributions in relation to needs than others. However, they see a greater inherent danger in a national scheme of this type, because of the dangers inherent in centralization.

A different tack is exemplified by the National Fund for Medical Education. Here, medical schools banded together to try to meet deficits with gifts not only from corporations, but from private citizens and organizations as well. It has not been too successful so far.

The institute method is another. Chicago University, following the war, set up three institutes for atomic research—for nuclear, metal and radiobiological studies. Cal Tech, MIT,

University of Michigan, as well as Princeton are among those with similar setups—some old, some new.

In general, companies are given the opportunity to consult with institute faculty and to use, royalty-free, any patents, in return for their money.

Here again, however, there are drawbacks. It only works for big schools which have, in the first place, the money to attract the faculty needed before industry will ante up. Smaller schools, which also should be helped, don't receive as much proportionally.

Reasons Why: Unfortunately, much of the college plea for industrial benefaction has been on the appeal of "You've got to help us from being dominated by government."

But they seem to have a legitimate case for requests without this scare appeal. Except in the field of nuclear study, government is far from the point where it is providing a general subsidy.

Smog Talk

Los Angeles industrialists, their preoccupation with smog intensified by the approach of summer weather, recently had a large dose of expert opinion on the subject, not all of it calculated to calm their nerves, or make the public happy.

First came the Second Technical Report of the Los Angeles County Air Pollution Control District; a few days later, in Pasadena's swank and almost-above-the-smog Huntington Hotel, the Second National Air Pollution Symposium, sponsored by Stanford Research Institute with the cooperation of Cal Tech, UCLA and USC.

The two affairs contrasted sharply. While the tenor of the symposium was slow-moving, scholarly, and heavily weighted with consciousness of the vast amount of work still to be done before smog is understood, the Control District report, on the other hand, indicated that as far as it is concerned enough is known about smog to undertake immediate action toward practical control. The District group went further and said that control devices now under construction will reduce Los Angeles smog to the 1940 level, when it was no problem.

Now or Later: Proponents of the opposing cautious and the let's-get-at-it views provided the warmest exchange of the Symposium, and gave additional weight to the speech by Manchester Boddy, publisher of the *Los Angeles Daily News*, in which he suggested that a central clearing house be set up to coordinate all work being done and to give consistent information.

One session of the two-day meeting dealt with international cooperation between Detroit, Mich., and Windsor, Ont. The two cities are carrying out a joint study of the causes of smog, its effects and remedies. The ten-year program is expected to come up with important results.

Among the more interesting developments, reported by W. A. Perkins and P. A. Leighton of Stanford University, is a plan under way to tag pollutants emitting from industrial smokestacks with fluorescent pigment tracers in order to trace their diffusion through the atmosphere.

Industry's Role: The case for letting industry fight its own anti-pollution battle was put by Henry B. du Pont, a du Pont vice-president and director. He called for practicality in approaching the problem, pointed out that though mountain-fresh air in industrial areas might be legislated, it can't be achieved. According to du Pont, practical abatement can best be accomplished by giving "full reign to advancing technology." He plugged for the idea that more can be done in the laboratories of industry than through "legislation or regulation."

Not all the blame was placed at industry's doorstep, however. SRI's P. L. Magill, reporting on mass-spectrometer analyses of automobile exhaust in greater Los Angeles, said that the minimum daily emission of hydrocarbons from the area's two million passenger cars is 700 tons.

Oxidation of unsaturated hydrocarbons—which come from refineries and other industrial sources as well as from automobiles—through reaction with ozone and oxides of nitrogen is held responsible for the eye-irritating properties of Los Angeles smog, and also for much of its crop damage and rubber cracking effects.

CURRENT LIST OF DPA-CERTIFIED FACILITIES

Company, Location	Product	Amount Certified	% Certified
Vermont Copper, South Strafford, Vt.	Pyrrhotite sulfur	$ 75,114	70
Blockson Chemical, Joliet, Ill.	Sulfuric acid	4,000,000	70
National Lead, St. Louis, Mo.	Sulfuric acid	957,346	70
Dow Chemical, Midland, Mich.	Bromine brine wells	276,500	50
	Brine	1,101,990	50
	Bromine	512,745	50
Firth Sterling Steel & Carbide, McKeesport, Pa.	Oxygen	370,000	55
Harshaw Chemical, Cleveland, O.	Anhydrous hydrogen fluoride	275,000	65
Allied Chemical & Dye, Baton Rouge, La.	Hydrofluoric acid	82,000	80
Monsanto Chemical, Muscle Shoals, Ala.	Calcium carbide	3,975,000	50
Midwest Carbide, Mayes County, Okla.	Calcium carbide	2,027,000	50
Pacific Carbide & Alloys, Portland, Ore.	Calcium carbide	91,513	50
Union Carbide & Carbon, Ashtabula, O.	Ferrosilicon	29,108,000	55
Tantalum Defense Corp., North Chicago, Ill.	Tantalum potassium fluoride	450,050	85
Bethlehem Steel, Baltimore City, Md.	Coke & coal chemicals	6,326,000	45
Borden, Demopolis, Ala.	Formaldehyde	1,028,610	55
Commercial Solvents, Seattle, Wash.	Formaldehyde	723,900	55
Commercial Solvents, Agnew, Calif.	Formaldehyde	450,100	55
Monsanto Chemical, Springfield, Mass.	Formaldehyde solutions	669,000	55
Dewey & Almy Chemical, Acton, Mass.	Refined isoprene	440,000	60
Humble Oil & Refining, Baytown, Tex.	Isobutane, propylene	298,000	65
Carter Oil, Billings, Mont.	Butylene-propylene polymer	845,000	65
Heyden Chemical, Garfield, N.J.	Pentaerythritol	1,207,465	65
American Cyanamid, Bridgeville, Pa.	Phthalic anhydride	6,165,000	30
Union Carbide & Carbon, Marietta, Ohio	Phenolic resins	5,740,000	55
Jefferson Chemical, Port Neches, Tex.	Metal phenolates	751,800	65
		248,200	45
Acme Resin, Chicago, Ill.	Resins	317,935	55
American Polymer, Peabody, Mass.	Plastics	89,400	55
United States Rubber, Naugatuck, Conn.	Miticide	779,250	45
Monsanto Chemical, Monsanto, Ill.	Hydrogenated products	539,880	60
Monsanto Chemical, Monsanto, Ill.	Chemicals	795,000	45
		270,900	45
		2,188,000	45
Monsanto Chemical, St. Louis, Mo.	Chemicals	1,900,000	45
Abbott Laboratories, North Chicago, Ill.	Pharmaceuticals	300,000	45

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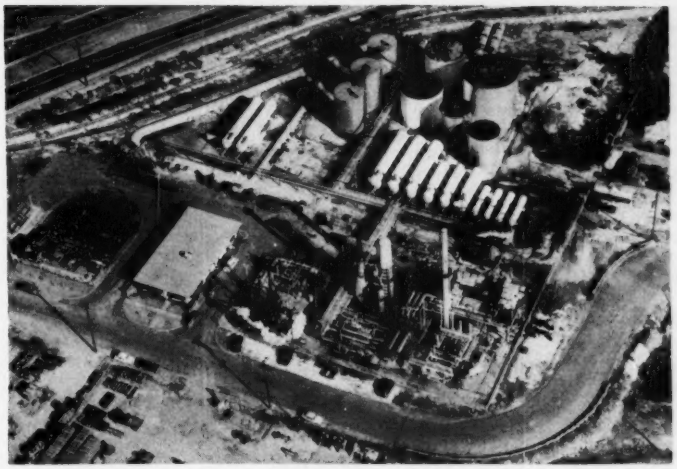


HAWAII's PACIFIC REFINERS: Hula girls give way to chemicals.

Turnabout in the Territory

Hawaii, which aspires to become the 49th state, has chemical hopes too, is gaining increasing stature in the chemical business. And every gain represents a loss to mainland producers as the erstwhile customer becomes a competitor.

More manufacturing and processing is being undertaken to support a swollen post-war population straining the islands' sugar-pineapple-tourist economy. Hawaii has even begun to export some finished products.

The effects of this trend are clear in the chemical field where further strides are likely.

New Blood: Pacific Refiners Ltd., established in 1949, now makes all the Territory's road asphalt—22,345 tons last year. This used to be brought in barrels from the West Coast.

Financing is being sought for a $5 million Hawaiian Cement Co. plant to produce from local materials the 600,000 barrels of cement now imported annually from California. DPA granted a certificate of necessity last year, but fiscal problems have delayed construction.

Pacific Refiners have been exporting Hawaiian chemicals to the West Coast since last summer. Current output is about 1 million gal. benzene, 600,000 gal. toluene and 100,000 gal. xylene per year, with considerable expansion a certainty.

PR is also making and storing about 5 million gal. of aromatic tar annually while it develops marketing arrangements. Other products include 1.5 million gal. butane for sale to island users as Isle-Gas, oxidized asphalt, road oils, protective coatings.

Young Ideas: Two old, established Hawaii chemical firms also have their eyes on expansion.

Pacific Chemical & Fertilizer Co. plans to build a $75,000 plant this year for sulfonation of alkanes. Primarily this plant will make an emulsifying agent for chemical weed sprays used by sugar and pineapple plantations, but may also supply some local detergents manufacturers.

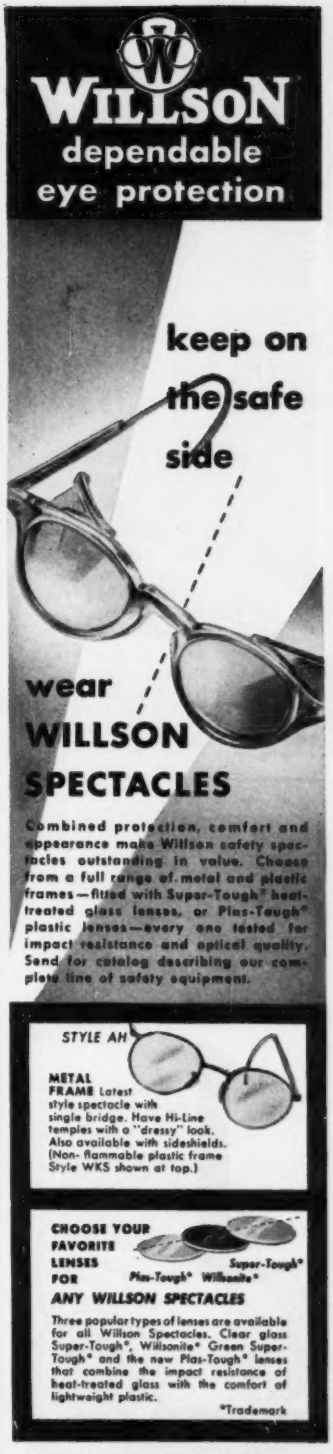
Using imported sulfur, PC&F has long made sulfuric acid, iron sulfate, zinc sulfate and superphosphate. It imports more muriatic acid than it makes, but plans an increase in manufacture.

PC&F also formulates weed killers, insecticides and rodenticides.

Hawaiian Gas Products Co., principal backer of the proposed cement company, produces 21,600,000 cu. ft. of oxygen annually in liquefaction plants at Honolulu and Hilo. Gaspro's Honolulu plant also produces 6 million cu ft. of acetylene, 3 million lbs. of carbon dioxide, 8,500 tons of hydrated lime and almost 2 million Cind-R-Briks made from volcanic ash and calcium carbide residue.

It imports calcium carbide for acetylene but gets coral limestone and other materials locally. In addition to supplying most of the Hawaii market, it has some sales in other Pacific areas.

And at Dole Hawaiian Pineapple Co., a $1 million plant is being completed which will mark the debut of the Hawaiian pineapple industry into the frozen concentrate field.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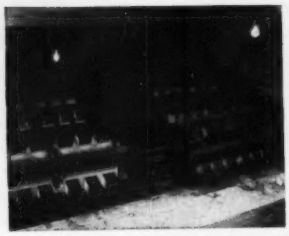

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Legal or Illegal

Attorneys involved in the Texas gas-gathering tax cases, which got under way recently, have until June 9 to file briefs, June 23 for reply briefs, after which arguments will begin on June 30. Crux: Fifty-one companies, including most interstate lines except three of the largest, contend that the tax is an unconstitutional levy on commerce and have sued for refunds.

Whatever District Judge Jack Roberts of Austin decides, the matter will undoubtedly go to the Supreme Court. The test cases now on trial involve Panhandle Eastern Pipeline Co., which does both intrastate and interstate business; Michigan-Wisconsin Pipeline Co., which carries gas only a quarter of a mile in Texas before moving it out of the state; and the Amarillo Oil Co., which handles some gas, solely within Texas. Obviously all phases of gas operation are well covered by these test litigants.

Chemicals Concerned: The chemical industry is involved in two big ways. As a major user of natural gas it must pay the tax if it stands up in court. This could up operating cost considerably since the industry uses gas extensively both as fuel and raw material.

If the tax fails to pass the courts, the state is going to have to raise money in other ways, and a fat target is the chemical industry. An effort to tax the industry directly was made in the last session of the state legislature. It failed but the next time could be different.

Railroad Commissioner William J. Murray, longtime expert on Texas' natural gas supply, and the state's first witness, contends that the future of the chemical industry in the Southwest may suffer substantially from interstate pipelines' tying up gas reserves under long-term contracts. He favors letting the gas lines buy on a free market, paying producers what the gas is worth today.

Unconstitutional: D. H. Culton of Amarillo, representing Panhandle Eastern, said the gas piped to other states is in interstate commerce from the time it leaves the well. Texas has for years taxed gas production at the well. Culton claims it violates the U.S. constitution to tax gas going into interstate commerce, after it leaves the well.

Attorney General Price Daniel replied that Louisiana has enforced a similar law since 1942. It collects on the "first taking" of gas, which Daniel contends is a local activity subject to state taxes.

"These people [the gas pipe lines] wouldn't be in business were it not for the conservation laws of Texas," Daniel said. He added that two-fifths of the gas "gathered" is consumed within the state, and that this too pays the new tax which the Legislature put into effect last Sept. 1.

Out of State: Murray expressed concern over the dedication of so much Texas gas reserve for the future use of consumers in other states. "According to one school of thought, Texas has a tremendous industrial future through natural gas," Murray told the court. "Texas and California can become the most populous states through industries that can be built to use gas as a raw material and for fuel.

TEXAS' DANIEL: Chemical industry is caught in the middle.

"Gas is the only fuel we have for Texas. If we export it all, there will be nothing left for future development."

Murray added that present known gas reserves will last about fifteen years, based on the present marketing trend. So far, discovery of new fields and expansion of existing reservoirs has kept pace with gas withdrawals every year.

Deficit Threatens: The state tax on "gathering" is nine-twentieths of one cent per thousand cubic feet. The Legislature used this fraction, because it was the amount estimated to be needed to avoid a state deficit. About half the $1 million per month income from the new tax is tied up in the lawsuits.

Gov. Allan Shivers has threatened to call the lawmakers into special session to pass other taxes, if the state goes in the red as a result of the gas lines' lawsuits. The Legislature will meet

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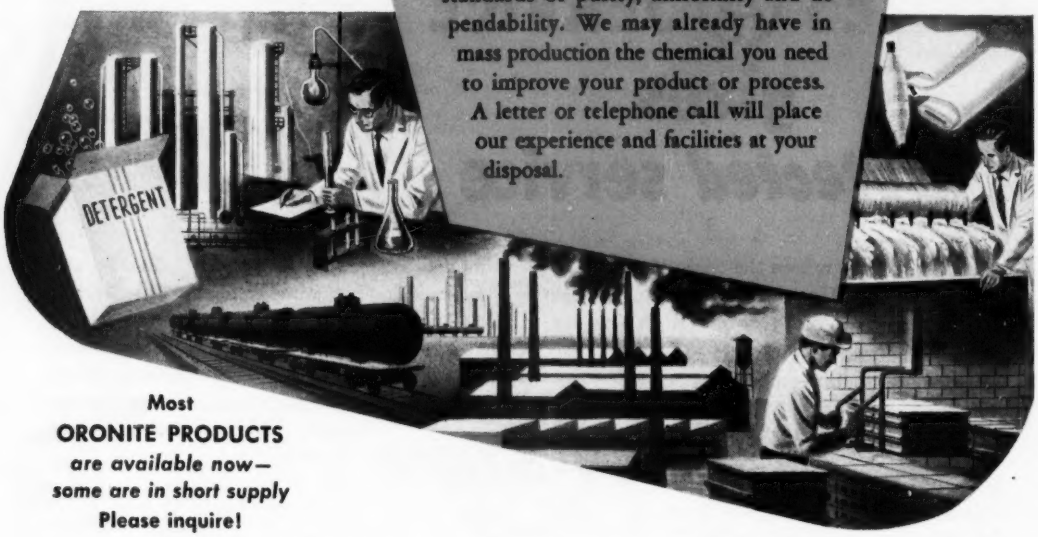

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again next January in regular session.

The gas "gathering" tax dispute seems certain to be headed for the United States Supreme Court, so a final decision is unlikely before late 1953. If the levy is upheld by the courts, lawmakers doubtless will use this method to put taxes on consumers living outside the producing states. If the tax is held unconstitutional, the pipe lines will have won an important battle against state taxation.

LEGAL . . . . . .

Ink in the Act: The first OPS action in the ink industry has been filed in Philadephia against the Sleight Metallic Ink Co. (Philadelphia) for alleged over-ceiling sales of printing ink. The action, an open-end complaint to permit further audit for possible additional infractions, is for treble damages of $2,074.53.

•

Reversed: A ruling which favored Leo C. Bradley (Louisville, Ky.) in a patent infringement suit for more than $1 million against the Dow Chemical Co. has been reversed in the Sixth Circuit Court of Appeals, Cincinnati.

Bradley and Chame D. Skinner (Wilkinsburg, Pa.) had sued Dow for allegedly using metal-shaping dies which they had patented in 1932. The appellate action overruled a decision of Federal District Court in Detroit which said an infringement existed.

LABOR . . . . . .

Oil Strike

Although the back of the strike was broken last week the picture in Texas was still not good.

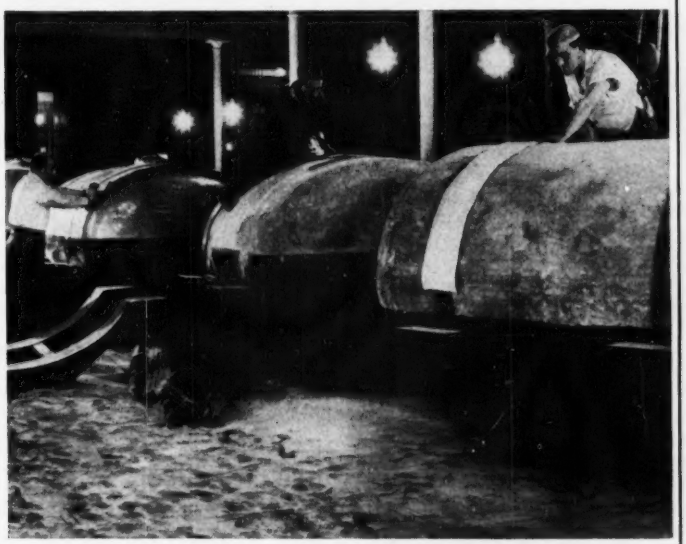
• Phillips Chemical Co.'s ammonia plant at Cactus was still being operated by supervisors at 50% capacity while Oil Workers (CIO) and company tried to iron out points of difference other than wages.

• At Pasadena Phillips Chemical's ammonium sulfate plant got a shipment of ammonia and is back in operation at the normal rate. Here the Oil Workers (CIO) local did not strike.

• Jefferson Chemical at Port Neches resumed operations after being down since May 1, but the plant's principal source of supply, the Texaco refinery, was still shut.

• Sinclair Rubber at Houston was still operating at a curtailed rate on refinery gases from Eastern States Petroleum and other sources. Its main raw material supplier, Sinclair Refining, was still down.

• Carbide & Carbon Chemicals,



Plastic Tanks for Desert Transport

CYANAMID'S POLYESTER RESIN Laminac, reinforced with Fiberglas mat, has taken over for steel in many fuel and water carrying tank trucks used by Aramco in the rugged terrain of Saudi Arabia. Resistant to corrosion, the biggest headache in sand-scoured Arabia, pound for pound stronger than steel, and lighter in weight, the new tanks are molded specially by Carl N. Beetle Plastics Corp., Fall River, Mass. Added dividend: The tanks are easily patched, almost like a tire, when accidents happen—which is often in Arabia.

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Tall Tale

Speaking of bouncin' recalls the time Cyclone Sue defied Pecos Bill on their weddin' day by trying to ride his horse. Got throwed so high she had to duck to miss the moon. When she came down a couple hours later, she lit square on her spring steel bustle and bounced back to the moon. Finally, after 3 days of bouncin', Bill relented and pulled the Gulf of Mexico over for her to land in. Caused a tidal wave that swamped Corpus Christi, but Sue came out gentle as a dove.

to Fabulous Fact

Pecos Bill never claimed credit for inventing the idea of absorbing motion in a body of water. Maybe he guessed the future usefulness of such fluid damping might be sadly limited by the fickleness of fluids. At low temperatures, they no longer flow; at high temperatures they thin out or evaporate.

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. . . . . .

Texas City, operated at a curtailed rate on raw material reserves and some new supplies obtained in the field while its major source, Pan American's refinery, was still closed.

• Shell Chemical's Deer Park plant was still closed by its striking Oil Workers (CIO) local. No meetings had been scheduled.

• Diamond Alkali at Deer Park was still in a bad position from the strike at Shell's adjacent plant.

•

High-Low: A board of conciliation, called in by the United Rubber Workers (CIO) local at Firestone Tire & Rubber Co.'s Hamilton, Ont., plant to decide its dispute with the company, has recommended a wage increase of only 4 cents an hour. The union had asked for 20 cents an hour increase, and the union representative dissented from the board's recommendation as released by Ontario's labor minister.

The union, however, gained its points of voluntary check-off and a union shop.

•

Industry Pattern: By leaving the problem of wages open, Socony-Vacuum Oil Co.'s Atlas Works, Buffalo, settled its troubles with the local independent union representing its workers earlier than most other companies. Interesting point in the settlement: It leaves wages to be determined by whatever national pattern is set. Opposition to such an idea has been wide on management's side in the oil dispute.

•

No Secrets: Employees having accesss to secret processes and formulas cannot be prevented from joining a union. That's the nub of a new ruling by the NLRB. As a result an election will be conducted by NLRB among 45 laboratory workers in the Colgate-Palmolive-Peet plant at Jeffersonville, Ind.

The board ruled that knowledge of secret processes and the filing of analytical reports that may result in disciplinary action against production workers do not make laboratory employees "confidential" employees under the Taft-Hartley Act.

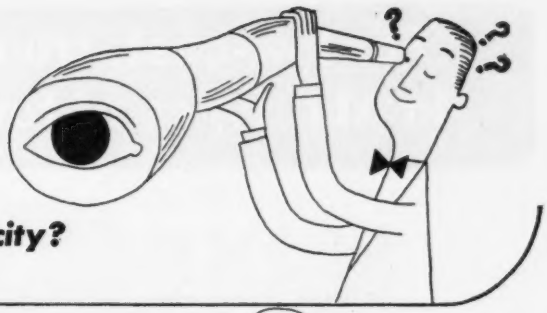
FOREIGN . . . . .

Chloromycetin: Parke, Davis Co. is developing a plan for a chloromycetin plant in Israel, has called home its Israeli representative for consultation. Machinery for the plant would be shipped from U.S.

•

Nitric Acid: South African Explosives and Chemical Factories has contracted with Werkspoor, the Amsterdam construction concern, for the building of

Looking for a noncorrosive solvent with low toxicity?



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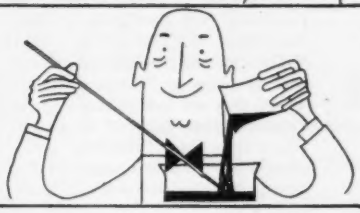

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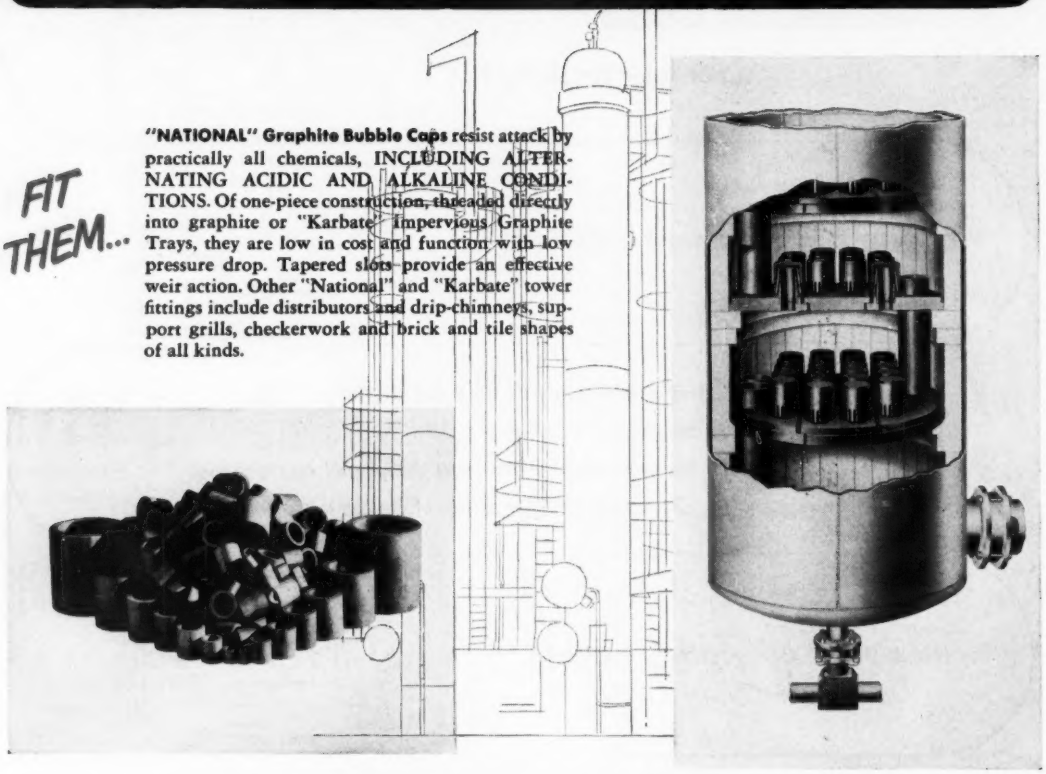

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a nitric acid plant in Modderfontein, South Africa, under patents of the Dutch State Coal Mines' nitric acid factory. The plant will be shipped in parts to the site of the plant.

•

Germany: A former segment of the I.G. Farben chemical trust—Casella Farbwerke—has now established itself as an independent unit, with a share capital of $23,810. Concentrating on the production of aniline colors, the firm also produces dye and printing intermediates and refining products.

•

Castor-Based Plastics: Pointing to Brazil as the world's largest producer of castor beans (20,000 metric tons annually), Jose Herminio de Morais, head of the Brazilian Aluminum Co., last week revealed plans for a multi-million-dollar industry based on plastics produced from castor oil. With an initial capital of $16 million, the plant will probably be set up in Sao Paulo, will produce plastics to be used in the manufacture of lacquers, artificial leather, plastic paint and the whole range of vinyl plastics.

Since Brazil formerly had to import almost all of her necessary plastic products, the new industry will enable her to make heavy savings in foreign exchange.

KEY CHANGES . . .

Howard S. Bunn: From vice president in charge of sales, thermoplastic div., to president, Bakelite Co.

Thomas D. Cartledge: From senior vice president, to president, Linde Air Products Co.

Robert S. Burns: To president, Western Electrochemical Co.

James H. Stryker: From executive vice president, to president, Perkins Glue Co.

R. H. Boundy: From manager, plastics dept., to director of research, Dow Chemical Co.

Donald V. Magnuson: From manager of research, Precision Scientific Co., to director of research and development, Labline, Inc.

V. C. Williams: To director of chemical development, Mississippi River Fuel Corp.

Joseph W. Lang: To director of research, central research lab., General Aniline & Film Corp.

George B. Hamilton: From general sales manager, amino products div., to general manager, same div., International Minerals & Chemical Corp.

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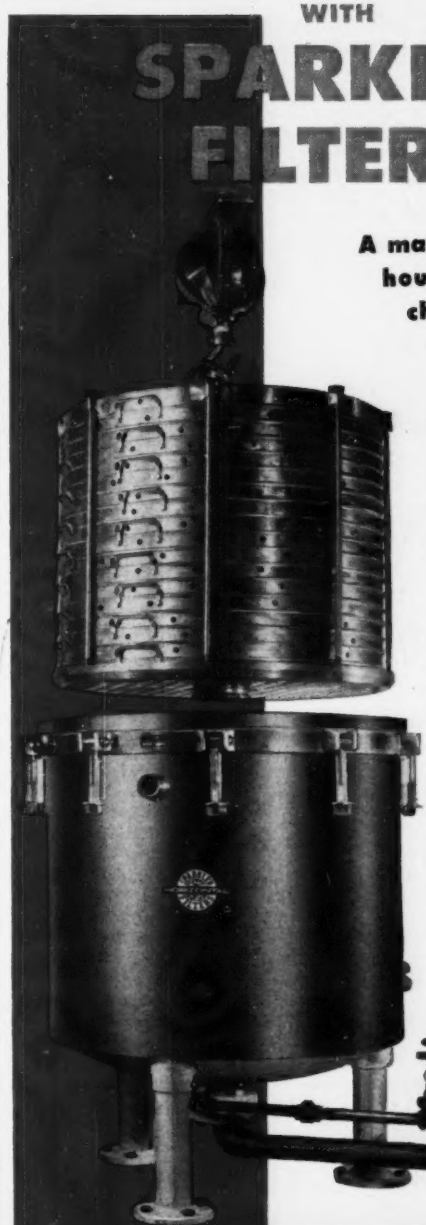

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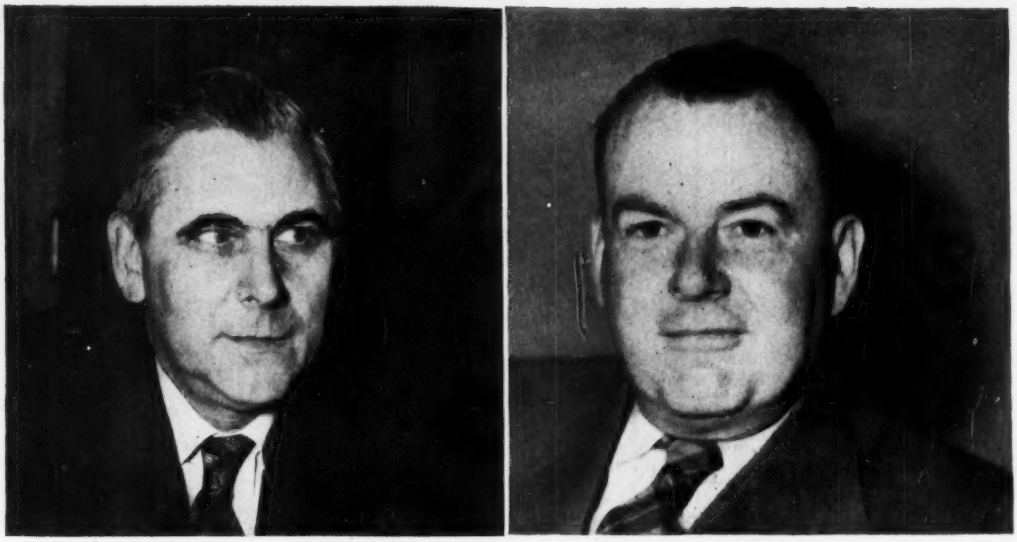

CORN PRODUCTS REFINING'S ALDER and FAITH: Two Larry's led the way.

Corn Pays Another Dividend

Glucuronolactone, newest corn-derived chemical, this week reaches the status of commercial availability.

Corn Products Refining blazed the synthetic trail to commercial manufacture, makes the product from dextrose.

Clinical research will be a major outlet; a drug product based on the compound already is on the market.

With nary a nod to the entertainment world, the chemical industry is proving on its own hook that corn can be profitable. Currently making the case for the industry is Corn Products Refining Co. Its new glucuronolactone is telling evidence, a neat follow-up on inositol (*CW, June 23, '51*).

Glucuronolactone has been tantalizing biochemists and clinical researchers for more than a decade. Its physiological activity as a detoxifying agent was known since the latter part of the last century. The substance's ability to combine with toxic chemicals in the body sparked a good deal of creative speculation.

But its scarcity dampened the enthusiasm of hopeful investigators.

A chemical synthesis was unknown. Oddly enough, detoxication proved to be both the means and the end for the lactone's availability. Until the advent of Corn Products' synthesis, the compound was obtained by feeding toxic borneol to dogs, isolating the conjugated glucuronide from the urine and hydrolyzing to glucuronic acid.

Enough for a Surprise: The process was hardly geared to meet mounting demands for the acid and lactone. Yet enough glucuronic was getting out to maintain a surprising amount of research activity. The fruits of this research opened promising areas of clinical application, eventually spurred the drive for a practical synthesis.

A hint of glucuronic acid's favorable influence in the treatment of arthritis and rheumatoid diseases aroused the first real commercial interest in the compound. Commercial Solvents Corp. took more than passing notice, explored the possibility of producing the acid or lactone for its pharmaceutical division.

In 1947, the first clinical use of glucuronic acid in arthritis was reported. By this time the wisdom of producing the compound was indisputable. But CSC had come up against a towering obstacle in the form of a large-scale working synthesis.

Commercial Solvents finally abandoned the manufacturing end of the business. Corn Products picked it up, agreed to earmark its production for CSC pharmaceutical research. Today CSC's Glucurone brand of glucuronolactone is still the largest single outlet.

No Reminder Needed: Glucuronolactone seemed like a natural for Corn Products. It was a six-carbon sugar derivative, so raw materials didn't look like much of a problem. And it looked like a chemical that could be produced synthetically. The company now needs no reminder that first looks are sometimes deceiving.

In August of 1946, chemical research forces—under the leadership of research director Albert L. ("Larry") Elder—mustered for an all-out attack on the problem. It took more than five years of a joint chemical-engineering effort (the latter headed by Corn Products' other Larry, William L. Faith) to come up with the hard-won process.

Corn Products insists that no one stroke of genius turned the trick, gives the entire credit to a sustained team effort. And it's understandably close-mouthed on details of the method. All the company says at this time is that dextrose is the starting material.

But one Corn Products official ventures that when the story is told it will be recognized as a major advance in synthetic carbohydrate chemistry. To nail his point he says: "We're always hearing from people who attempted the synthesis . . . tell us they made some of the stuff . . . started with

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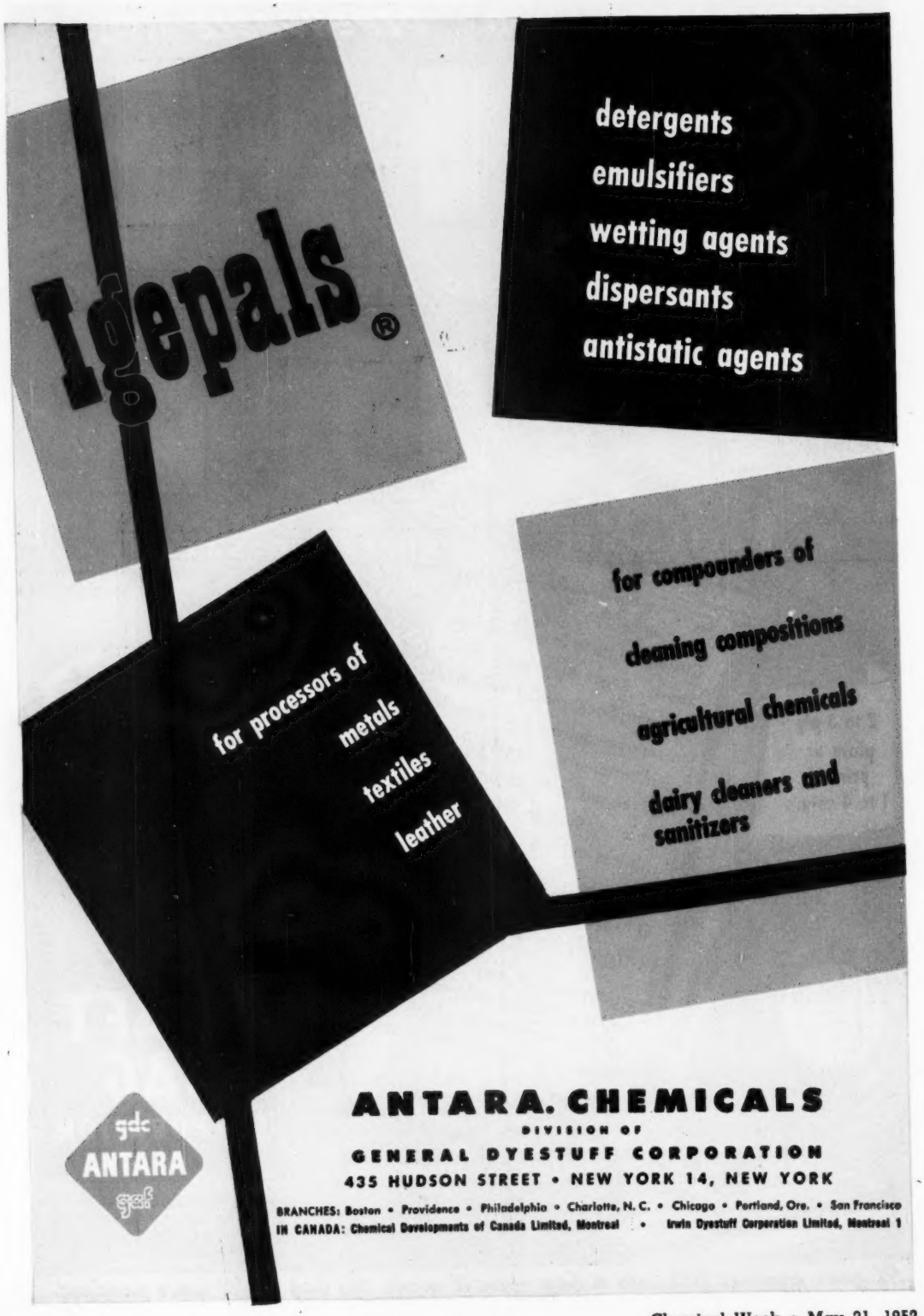
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100 pounds of dextrose, wound up with 5 grams of glucuronolactone."

Needless to relate, the commercial process operates considerably more efficiently. The lactone's going price is now down to an all-time low of $15 a pound—hardly cheap, but not out of line for a pharmaceutical.

Immediate effect of glucuronolactone's availability and low-cost will be a surge of pent-up research activity. The compound's potential as an antiarthritic agent will in all probability be the focus of interest. But its possible usefulness as a detoxifying agent, growth factor, and gut-sterilizing agent in abdominal surgery won't be overlooked.

All of these applications have received some study, are sufficiently promising to warrant a closer look.

There is also some interest in the substance as a solubilizing agent for insoluble drugs and as a diuretic in the treatment of allergies and toxemias. As of now these applications are deep in the realm of uncertainty, are backed by little or no experimental evidence. They're merely suggested by the chemical nature and physiological activity of the compound.

But one thing is certain: The dog days of glucuronic acid and its lactone are gone forever. If future research progress with the compounds doesn't measure up to today's hopes, it won't be due to prohibitive cost or lack of a dependable supply.

Hydride Takes Heat Off Aluminum

A National Bureau of Standards research program aimed at the development of practical methods for the deposition of metals like molybdenum, tungsten, titanium and zirconium has paid off with a low-temperature electrodeposition technique for aluminum. Key: a new type of organic plating bath consisting of an ether solution of aluminum chloride and a metal hydride.

With the new bath, dense, ductile deposits of the silvery metal—suitable for a number of exacting applications—are easily obtained.

For aluminum, electrodeposition is a trying affair. Because the element is so far above hydrogen in the electromotive series, it has never been deposited from aqueous solutions which always contain some ionic hydrogen. The metal is produced commercially from a bath of fused cryolite and aluminum oxide. But this is a high-temperature process, produces a fused metal unsuitable for electroplating of electroforming.

Electrodeposition from nonaqueous solutions has been tried in the past, and with some success. But according to NBS, previous procedures were too difficult for practical application, generally produced a metal lacking in purity, ductility and other desirable qualities.

Now, thanks to the Bureau's new method, it's a different story. Here's the recipe that turned the trick:

Drier the Better: The plating bath is prepared by adding lithium hydride or lithium aluminum hydride to an ethyl ether solution of anhydrous aluminum chloride. For best results the ether should be anhydrous and alcohol-free; concentration of aluminum chloride is not critical, may vary from one to four molar. Current densities may be as high as four or five amperes per square decimeter, depending on the desired thickness of the deposit.

Fire hazard with such a system is doubtless substantial. But NBS says that because of the high concentration of aluminum chloride in the ether, "the bath is not as flammable as would normally be expected."

To insure dryness, Bureau researchers set up a glass plating vessel with a tight polyethylene lid. Aluminum anodes pass through the lid; objects to be plated (cathodes) are introduced through a central hole in the lid. No agitation of the bath is necessary; anode sediment settles to the bottom, obviating the need for filtration to keep the bath clear.

If hermetically sealed, the bath will keep for several weeks. Under ordinary operating conditions, however, the solution slowly deteriorates and eventually gives streaked and brittle deposits. Poor results also are unavoidable when lithium hydride concentration falls too low.

Add to Reduce: Even when everything is in good working order, deposits 0.01 inch or more thick are apt to be visibly crystalline. NBS declares that this effect can be reduced by the addition of dichloroethyl ether. And by way of compensation, pitting—which frequently occurs in aqueous baths—is practically non-existent in the ether bath.

In all probability, the new plating procedure will not revolutionize the commercial metallurgy of aluminum. But the Bureau does expect it to be useful for electroforming articles with close inside tolerances and for putting thin protective coatings of the metal on all sorts of small equipment.

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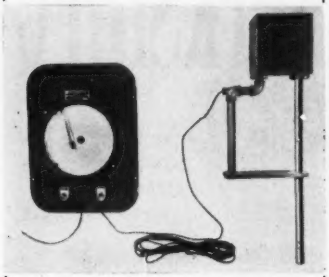

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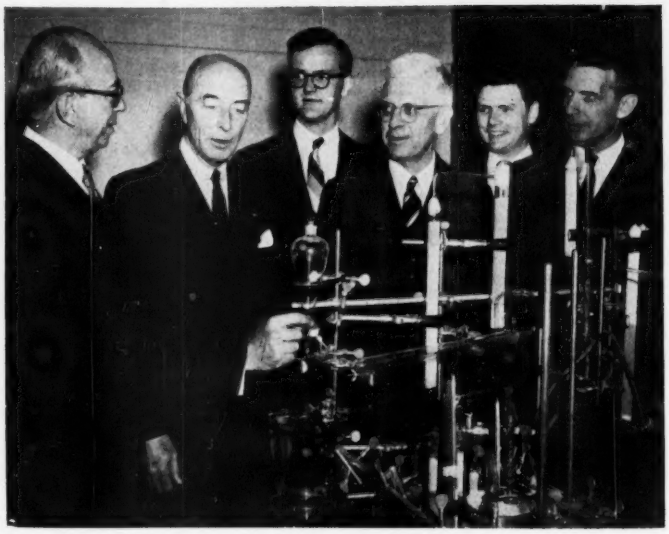

Opening Day Audience

PETER O. FORRESTAL (third from left) and brother, Michael V. Forrestal (second from right), sons of the late Secretary of Defense James Forrestal, get a first hand look at gaseous flow apparatus on opening day of Princeton University's James Forrestal Research Center. With them on a tour of the new 17-building installation are (left to right): Lewis L. Straus, former member of AEC; Defense Secretary Robert A. Lovett (who delivered dedication address); Princeton President Harold W. Dodds; and Alfred E. Driscoll, Governor of New Jersey.

Allethrin Follow-Up

The U.S. Dep't of Agriculture team of La Forge, Schechter and Green, which synthesized allethrin, now has another budding insecticidal laurel to boast of.

In conjunction with M. Matsui of Nissin Chemical Co. (Osaka, Japan), the trio has synthesized Furethrin—a mixture of stereoisomeric esters of the pyrethrin I type, distinguished by a 2-furfuryl side chain.

Starting material for the synthesis is furfuralacetone. It's hydrogenated to a furfurylacetone, then carried through essentially the same procedure used for producing allethrin.

Furethrin shouldn't go unnoticed for long. It's about equal to the pyrethrins in toxicity to house flies. And judging from raw-material costs, it should be cheaper than allethrin.

•

Phila. Double: American Aniline and Extract Co. of Philadelphia is now blueprinting plans for new laboratories. Also in the Philadelphia area, Wyeth, Inc. has started work on its new $151,000 chemical development facilities at West Chester, Pa.

•

On the Bandwagon: Newest manufacturer of an isonicotinyl hydrazide TB drug is U.S. Vitamin Corp. (subsidiary of H. E. Dubin Laboratories, New York, N.Y.). Its brand name: Tisin.

•

Instrument News: American Optical Co. (Buffalo 15, N.Y.) is out with a new simplified polarizing microscope for crystallography, chemical microscopy and petroscopy. Rapid and critical focusing is done with a single dual-knob adjustment. And, according to the company, the instrument self-compensates for wear, eliminates backlash.

•

New Synthetic: Reports from Germany indicate that the chemical works at Huels, in the Ruhr, is carrying out extensive tests with a new type of synthetic rubber which is supposed to be "cheaper and better than buna." It's now being produced at a rate of 500 tons a month at Huels and at the Bayer works, Leverkusen.

•

Good Prospect: Here's more on Du Pont's new ozone-resistant chlorosulfonated polyethylene (*CW, Apr. 12*). The rubber-like material has been tagged Hypalon S-2, is being pilot-produced at Belle, W.Va. Du Pont thinks the product is worth a second look in products like: tire treads and

Try these Ketone Formulations for Top-Quality SPECIFICATION Lacquers

THE highest standards of quality are vitally important in making government specification lacquers. In addition, formulators agree that the factors of solvent purity and economy must also be present. You'll find that ketones meet every requirement. For example

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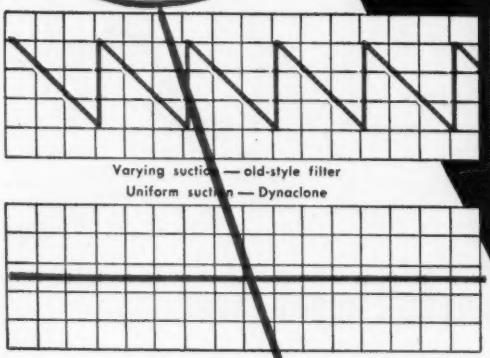

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white sidewall tires; protective coating for automobile weatherstripping; natural and synthetic rubber blends; wire and cable coverings; and coated fabrics.

•

Problems Wanted: Beckman Instruments, Inc. (Pasadena, Calif.) has recently established a new division to cope with industrial instrumentation problems.

•

Warning: Pacific Northwest lumber and plywood manufacturers had better take the lead in promoting chemical processing of wood waste. That, in effect, was the warning Hillman Lueddemann (of the shipping and lumber firm, Pope and Talbot, Inc.) sounded to the recent 27th annual conference of Pacific Northwest Trade Assoc. at Victoria, B.C.

Predicting a new wood chemical age, Lueddemann said that unless the lumber and plywood men acted quickly, they might soon be competing for logs with a chemical industry financed and managed by industrialists from other regions who already are eyeing the resources of the Pacific Northwest "with more than idle curiosity."

•

On the House: Atomic Energy Commission has released 24 new patents, seven of them chemical, for non-exclusive, royalty-free licensing. Commission-held patents and patent applications released for licensing now total 419.

•

All for Rubber: Armour Research Foundation of Illinois Institute of Technology has just opened its brand-new $50,000 rubber research laboratory.

•

Barbiturate Aid: Researchers of Iowa State College report a new determination of barbiturates and sulfa-drugs based on non-aqueous titration. These compounds are weak acids, give poor end points in water and alcohol titrations. But sharp visual end-points are readily obtained from titrations in dimethylformamide.

•

Speedup: A patent (U.S. 2,559,749) has recently been awarded to the Du Pont Co. for the incorporation of small amounts of a fluorinated alkyl phosphate into aqueous polymerizations of materials like tetrafluoroethane and fluorochloroethane. The additive shortens the polymerization cycle.

•

A First: Schwarz Laboratories (New York, N.Y.) is now offering N-ethyl maleimide on a commercial basis.

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Medicinal or Drug—A Civil War Question

Homatropene hydrobromide is the material used to dilate the pupil during eye examinations. That is appropriate since the current in-the-courts clash over its proper customs classification is an eye-opener for the entire synthetic organic manufacturers group. Reason: These producers have a civil war on their hands as a result.

Hanging in the balance is the future of many an American-made product dependent on strong tariff barriers for economic survival. The suit over homatropene, in which the plaintiff's brief was filed last week, is considered a test case by both parties, thereby enhancing the trial far beyond the effects to be expected from the ruling on it as an individual chemical.

On one side of the question there is arrayed the full power of the U.S. government, aided and abetted by the Synthetic Organic Chemical Manufacturers Association; and behind the barricades on the other side stands the Sandoz Chemical Works, in all other cases a staunch SOCMA member.

It's a Medicinal: The Government contends that the main characteristic of homatropene is that it is derived from coal-tar products and is used by doctors. That should put it squarely in paragraph 28 of the Tariff Act of 1930 which covers medicinals from coal-tar. This paragraph provides for a generally high rate of duty, and moreover, the percentage is based on American selling price.

The protection thus granted has allowed domestic producers to hold their own. For twenty-five years, the amounts imported from abroad have been very small. American manufacturers would like to keep it that way.

It's a Drug: That's not fair, says Sandoz. Homatropene has no curative powers and, although it is produced in part from coal tar, the effective portion of its product is derived from the belladonna nightshade plant. Therefore, claims Sandoz, it should be imported as a "drug" and enjoy the low rate and foreign-value base of paragraph 34.

The government has found at least one doctor who had administered the chemical internally, but Sandoz counters that this is not standard practice. In its mind, a material has to be predominantly used for curative medicine before it could be classified as a medicinal. Otherwise, almost every known substance which has ever been experimentally tried by doctors could be transferred to the high-duty medicinal classification.

Vice Versa: The Government, and SOCMA, suspect that a wholesale transfer of chemicals—but from high-duty to low-duty groups—is just what Sandoz has in mind as an optimum result of the case. Both feel that if the Government loses, the door will be opened for the reconsideration of a whole line of chemicals which either can be made by routes not involving coal tar or enjoy large markets not falling into a strict definition of medicinal use.

To stop such a development, SOCMA and its members are fighting to plug a possible breach in the tariff wall.

Leather Fights Back

Members of the Tanners Council are getting ready to tan some hides, but instead of their usual starting materials, they've got their eyes on that part of the chemical process industries which is encroaching on their markets with "artificial" substitutes.

These materials are no minor threat to the tanners' existence: More than half of the shoe soles made during the first two months of this year were chemically synthesized. Lesser inroads have been made into other areas of what used to be the leather-makers' exclusive market.

The tanners have decided to spend a million dollars to slow up this trend. Moreover, they are organizing their ranks for the battle and looking for allies among other industries which will be directly or indirectly affected by the current developments.

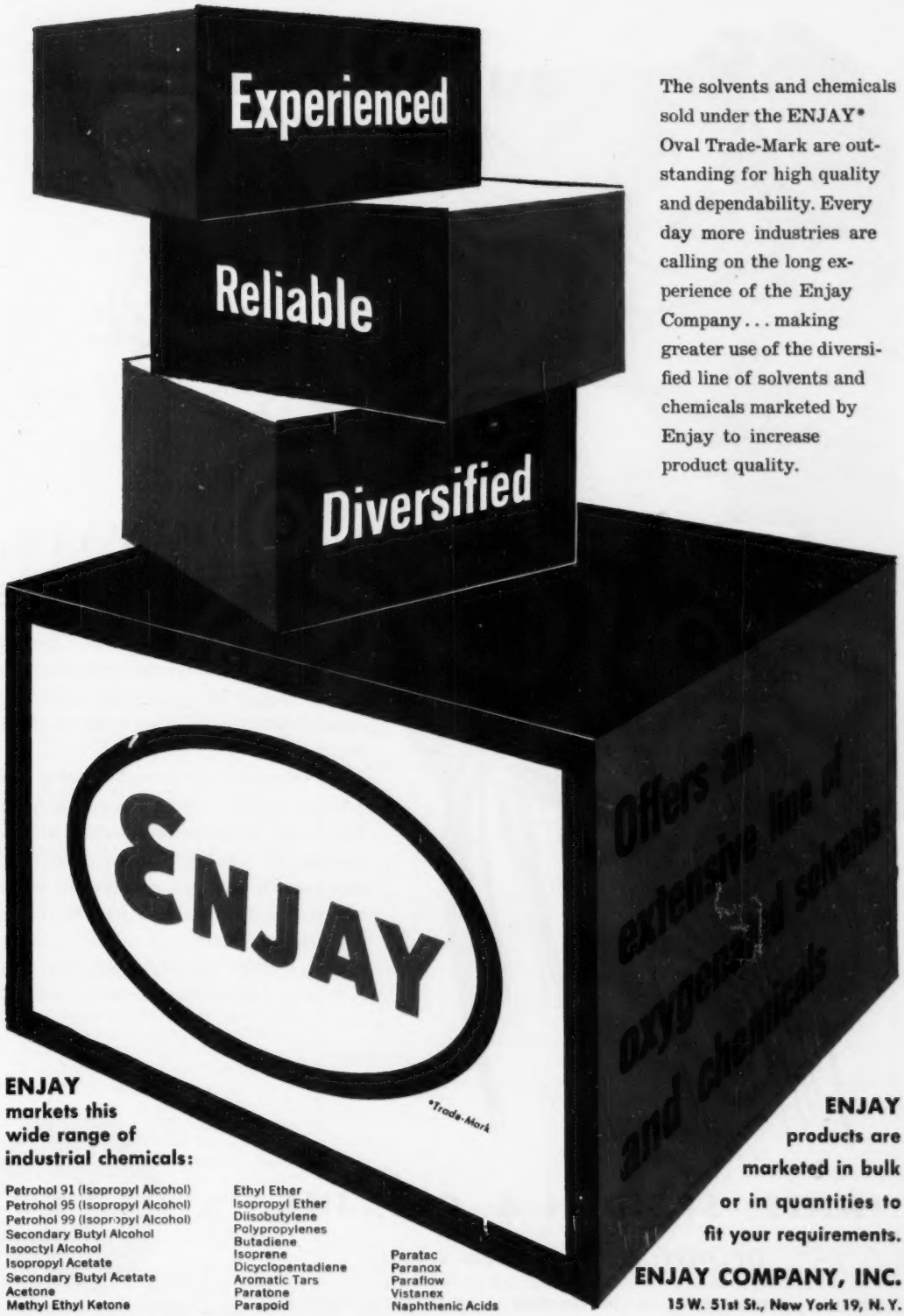
Shoulder to Shoulder: These other groups, however, could not be directly enrolled into the Tanners Council; therefore its 400 members created the Leather Industries of America as a fighting front open to any related concern. The tanners hope to get recruits from cattlegrowers, meat packers, shoemakers and—here is an ironic twist—chemical manufacturers who find tanning an excellent outlet for leather chemicals.

Leather Industries is about ready to take the offensive. It now has in hand about 70% of the $1 million to be spent on advertising, exhibiting, lecturing, and general public relations.

In addition, a part of the fund will be used to investigate untapped markets for real leather, and another portion will provide for the prosecution of "false and misleading" statements by artificial leather manufacturers. The tanners feel that describing any

Bubble Boards Hit the Road

REFRIGERATED TRAILERS are developing into a major outlet for Dow's Styrofoam entry in the foam plastics field. Blocks weighing one-fourth the equivalent weight of cork are cut to shape and laid on the trailer bed. Final flooring can often be installed directly over the insulation, thanks to the 20 psi compressive strength of the polystyrene material. Added advantages: low moisture pick-up, high vapor resistance.



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Isopropyl Ether
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chemically-made product as being "like real leather" is just carrying things too far.

•

Time Table: Carbide and Carbon has decided on a tentative schedule for the commercial sale of the coal-hydrogenation products to be made at its new plant in Institute, W. Va. (*CW, May 10*). The first group, including high-boiling phenols and aromatic hydrocarbon solvents, should be available by some time this summer. The second series, which would involve such chemicals as toluene and xylenes, will probably be obtainable late in the year.

•

Polyvinyl Series: Six standardized grades of polyvinyl alcohol will be marketed by the American Monomer Corp. (Leominister, Mass.) under the trade name Lemol. The grades will vary both in viscosity and degree of hydrolysis.

•

Lignin Vanillin: Givaudan-Delawanna, Inc. (New York) will add vanillin U.S.P. from lignin to its present sale of vanillin U.S.P. from eugenol. The new material will be available in August.

•

Special Chemical: Benzyl trimethyl ammonium hydroxide is being offered in commercial quantities by the Chemical Development Corp. (Danvers, Mass.) It is reported to be especially useful as a catalytic material.

•

Flammable Safety: The Manufacturing Chemists' Association has published a revised manual on the unloading of flammable liquids from tank cars. Copies are available at 20¢ each through the MCA office in Washington, D. C.

•

Ex-Axis Imports: The current pattern of import activities is highlighted by a strong showing from German, Italian, and Japanese sources in spite of a dip in volume from other European and South American countries. Custom duties collected at the Port of New York during April were 17% under the same month of 1951.

•

Drums Aplenty: With their industry working at 80-85% of capacity, the fiber drum manufacturers' Industry Advisory Committee has recommended to NPA that the containers be removed from the minimum working inventory provision of Regulation 1.

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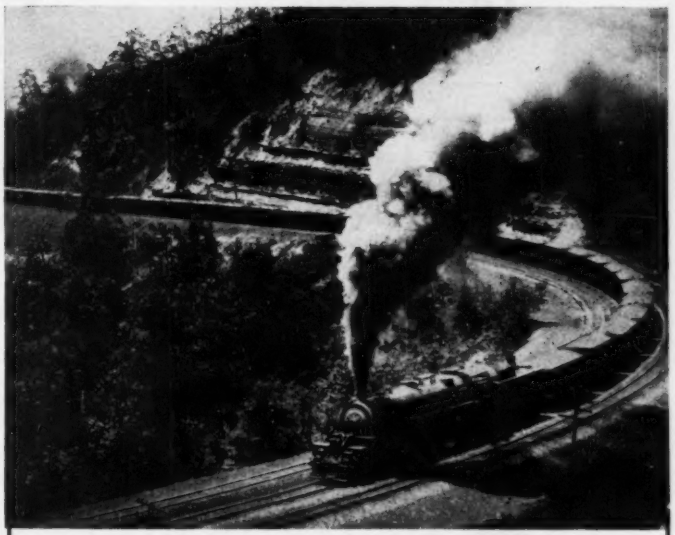
MD Distributor: Lewis & Co. is the new distributor for Metals Disintegrating Co. in Louisville, Ky.



Railroads' Turn to be Heard

Ever since the ICC granted the rail carriers an average 6.8% increase in rates on April 11, their industrial customers have been exposed to puzzled press rumblings over the move. The public has been told that new inflationary pressures have been added and that something must indeed be wrong with an industry that has needed so many revenue boosts during the last few years.

Feeling that only one side of the story is being presented, the Association of American Railroads has now issued a statement which is designed to correct that situation. Of special interest to chemical traffic men are the overtones of continued dissatisfaction with the carriers' share of the value added to a product during the course of its industrial manufacture.

Against a backdrop of lowered car-loadings (down 10% from a year ago during current weeks) which may hasten the day when the roads may be forced to go to ICC for again another raise, the AAR has this to say:

"This increase is described as the twelfth since the end of World War II—but eight of the twelve have been interim increases, subsequently absorbed into, and made a part of, four basic decisions.

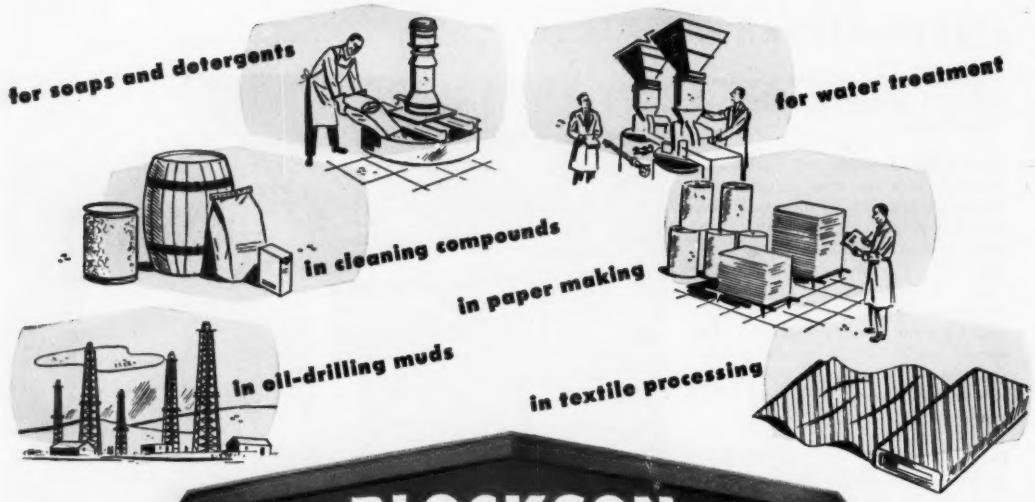
Whether described as twelve increases, or four, all of them put together have raised the level of railroad rates above pre-war levels by only a little more than one-half the percentage by which the major elements of the cost of producing rail transportation—wages and fuel and materials prices—have gone up in the same period.

And the average revenue the railroads receive for performing a unit of service—moving a ton of freight one mile—has gone up since before the war only about one-third as much as the average increase in prices generally.

So railroad freight rates today—even after the latest increase—are a smaller proportion of the cost of most things people buy than they were before the war.

Even if all freight rate increases authorized since 1949—including the one of April 11—were reflected in full in the prices you pay for goods, the total increase in prices would be something less than one-half of one cent out of each dollar.

The significant thing, the important thing, to all Americans is that the recent increase in rates means that railway revenues will be brought more nearly in line with increases which have accumulated since 1949 in the cost of producing transportation—so that the railroads will be better able to serve the public and to meet the requirements of agriculture, commerce and industry, and the demands of national defense."



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- Sodium Polyphos (Sodium Hexametaphosphate) (Sodium Tetraphosphate)
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- Chlorinated Trisodium Phosphate
- Trisodium Phosphate, Monohydrate
- Disodium Phosphate, Anyhdrous
- Disodium Phosphate, Crystalline
- Monosodium Phosphate, Anhydrous
- Monosodium Phosphate, Monohydrate
- Sodium Acid Pyrophosphate
- Sodium Silicofluoride
- Sodium Fluoride
- Hygrade Fertilizer

BLOCKSON

PENN SALT'S PIERCE: His paint plan is paying off.

Painting for Profit

Penn Salt studies coatings that protect against corrosion, comes up with a system for maintenance painting.

It figures that the system will cut painting costs by 53%, will save $50,000 yearly in one plant alone.

The key: a protective coat at least five mils thick, proper surface preparation, regular inspection and repair.

For its young recruits, the Army has a bit of sage advice that runs something like this: "If it moves, salute it; if it doesn't move, move it. And if you can't move it, paint it." The net result is that a lot of young soldiers are kept out of trouble and there's a lot of indiscriminate painting of inanimate objects.

A policy like that could never work in a process plant, of course, where the maintenance crew gets paid by the hour. But much of the industrial painting that is aimed at protecting the plant and equipment is done on a hit-or-miss basis. At least, that's the view taken by the Pennsylvania Salt Manufacturing Co.

More Than Its Share: Bob Pierce, of Penn Salt's Corrosion Engineering Products Dept., was well aware of the national bill for corrosion that runs an estimated $5.5 billion a year. He felt further that—since it deals with chlorine, sulfuric acid, hydrofluoric acid and a number of other bad acting chemicals—the company was picking up more than its share of the tab. So two years ago he inaugurated a program to study the efficacy of the various types of protective coatings and, more important, to learn how to get the most out of them.

Results of the study were incorporated into a new maintenance system for the protective painting of process equipment. Pierce reports that the system has been so successful that it is now being extended to all the company plants, including subsidiary Sharples.

In one plant alone, says Pierce, the new system will effect savings of about $50,000 a year. And that does not include economies that can be derived from prolonging the life of the equipment. He figures that the company will cut its bills for maintenance costs by 53%. What's more, he says that figure may eventually go up to 65%.

Five Points For Paints: The system which Penn Salt has developed for protective painting stems from five points brought out in the study:

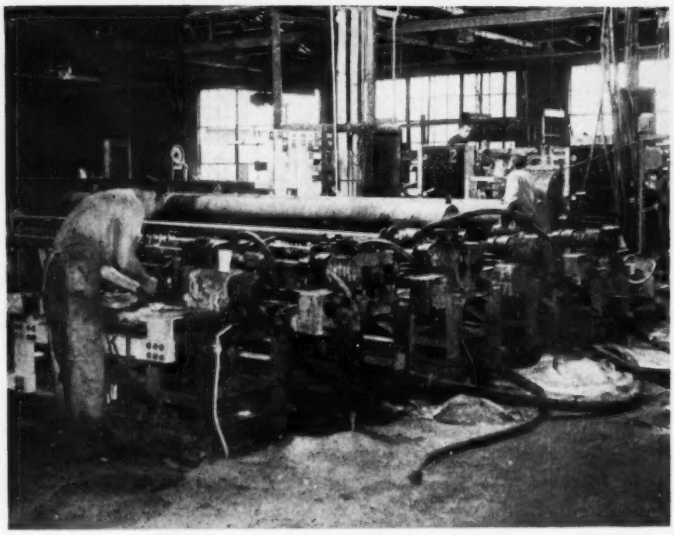
- Basically, says Pierce, the dry film thickness is more important than the number of coats, although a minimum of three coats is necessary to insure coverage of pits in the finished surface. In any case, the dry coat has to be at least five mils thick.
- Average direct cost for painting is about 32¢ per sq. ft. For each coat over three, the cost rises by about 17%. Thus, while a paint that gives a thin film may be cheaper, it may be profitable to use a more expensive paint to get the necessary five mils in three coats.
- A regular schedule for inspection and repair is a must for the chemical industry. If followed, says Pierce, costs for maintenance painting can be cut to less than 7¢ a sq. ft. Penn Salt figured that previously, it was spending 14.7¢ a sq. ft.
- Sand blasting a corroded surface before painting is more effective than going over it with a wire brush. In that way, the life of the coat can be doubled or even quadrupled.
- Of the industrial paint compositions recommended for general industrial maintenance work, 60% fail rapidly when exposed to conditions met in average chemical plants.

Panel Approach: When Pierce decided that a scientific approach to the protective coating problem was necessary, he called in Kenneth Tator Associates, protective coating consultants of Coraopolis, Pa. First approach to the problem was to test specimens on "checkerboards" in chosen areas. Pierce says results were unsatisfactory because the plane surface of the panel did not simulate actual plant conditions.

A more suitable test panel was developed by welding a short length of channel iron to a steel plate. By further modification, it was adapted to test coatings over planes, welds, pits, edges, crevices, projections, inside corners, scratches, impact injuries, moisture and soilage pockets.

All told, tests were run on 62 paint formulations representing ten basic types: Epon, furane, oleoresinous, phenolic, polystyrene, vinyl, wax, synthetic and chlorinated rubber systems. To insure validity over a range of climatic conditions, panels were exposed in chemical plants in three sections of the country.

Tests at the plants will continue for twelve years. Meanwhile, Pierce says he is ready to offer advice based on his findings to all comers. But he frankly admits his motive is not purely altruistic, for Penn Salt has its own line of protective coatings. Thus Pierce figures the company can cut its maintenance costs and build good will among customers. At the same time, it may sell more paint.



NICKEL-LINED PROCESSING: Riding a crest.

Nickel-Lined Bonanza

Enthusiasm at Bart Manufacturing Corp. is riding the crest these days—not surprising considering that a just-finished review of business gains showed that this New Jersey company's nickel-plating steel pipe business had quadrupled since early 1950.

Two main factors were responsible: First, the nickel shortage; industries, unable to obtain pure nickel tubing, turned to nickel-lined pipe as a substitute. Second, industrial test programs designed to prove the worth of nickel-lined pipe were coming of age.

Nickel-lined steel pipe is not new and neither is the technique that Bart uses. Such pipe has been around a long time—but only in short lengths. Bart's claim to fame is the unique machine it invented to nickel-line long lengths of pipe.

Today most of the available nickel is going for such defense needs as the AEC program, aircraft engines and chromium-nickel stainless steel for specialized constructions. Hence, with the third-round DPA chemicals expansion program now in gear and nickel at 56½¢ a pound, nickel-lined pipe is a two-way boon to industry.

Plating Process: Steel pipe is cleaned and placed in Bart's novel machine. Pipe ends are capped and an anode inserted. A nickel solution, consisting of a mixture of inorganic nickel salts adjusted to a definite acidic pH, is then continuously pumped through the pipe. During the electroplating, the pipe is rotated continuously to give an even coating. Plating is continued until the desired thickness is obtained.

Nickel can be deposited to any desired thickness, but for most purposes a coating in the range of 0.010 inch is used. A unique feature is the fact that Bart machines can handle (and were the first to do so successfully) 20- to 21-foot lengths of pipe in diameters from 1½ to 24 inches. They can plate the outside as well, but inside coating only is more usual. Nickel-plated weld fittings are also part of the line.

Economic Deterrent: Nickel-lined pipe is not necessarily the answer for all who want corrosion-resistant lines—it is available in seamless steel pipe and weld fittings only. Cost may also be a barrier: Plating pipe costs up to three times as much as the pipe itself. Obviously, it's better to use less expensive (though less resistant) material if economics so dictate.*

Another limiting factor of nickel-lined pipe: Because of the normally thin coating, it can be used only where the corrosion rate is small and uniform. The nickel-lined material can, however, be a real factor in extending the metal because it usually contains only about a tenth as much nickel as the pure tubing.

Where It's Used: In the chemical industry, nickel finds one of its most important applications where protection against alkaline materials is required. Lever Bros., for example, is using Bart's pipe to handle hot caustic and hot fatty acids. Wyandotte Chemicals employs it for caustic lines, Dow for carrying an organic chloride. Some kraft paper plants are using it. Carbide and Carbon Chemicals utilizes the pipe for handling brackish water at its Texas City plant.

Bart's Start: Bart got its start in the nickel-coated pipe business back in 1943-44. The atomic energy program needed thousands of feet of nickel pipe in near-20-foot lengths. This presented a real problem: Not only was there not enough nickel, but nickel-coated pipe in such long lengths was not made.

The upshot was that Sig Bart, president of his company, presented a sample of his pipe to the atomic project authorities. It wasn't 20 feet long but it was six, which was about three feet longer than had heretofore been commercially available. A development contract was tossed in his lap, enabling him to build machines which turned out a bill-filling product. The New Jersey company went on to supply the atomic works with 150 miles of nickel-lined pipe in diameters varying from 4 to 18 inches. Significantly, this pipe is still in service after almost a decade.

After the war, Bart bought the government-owned machinery, on which he had exclusive patents, and has since been inching his product into private industry.

New Look: Others also see dollar signs in the nickel-lined pipe business. Van Der Horst Corp. of America (Olean, N. Y.) worked out a similar process, was in the business for a while, has since retired from the field. American Locomotive Works, teamed with Keystone Chromium Corp., is now making "nickel" pipe for AEC.

Current bright star on Bart's horizon is the interest some in the oil industry have just expressed in a cool million feet of its brain child. And since the firm is on the inside track, thanks in part to the initial government boost, it looks hopefully for a further steep climb on its sales office's wall chart.

* Pipe coated with 0.007 to 0.010 inch of nickel is competitive with Schedule 10 Type 304 stainless steel; a 0.015 inch nickel lining, with Schedule 10 pure nickel tubing.

Speedy Slurries

A new slurry mixer for preparing intimate mixtures of liquids and "non-wettable" solids is now being marketed by National Foam Systems Inc. (West Chester, Pa.).

It works on the Venturi principle and has no moving parts. In operation, the dry powder is fed from a

closed hopper into the liquid stream at a predetermined temperature and pressure. The company says that the new mill quickly and easily wets the particles to form a homogeneous mixture.

Main applications: clarifying liquids and in precoating filters. Too, it is being used to prepare such mixtures as cellite-water, borax-glycol, lactose-water, lime-water, clay-oil, and carbon black and water or oil.

A single mixer can feed from 10 to 200 pounds of dry material a minute into an equal amount of water. Two or more units can be combined by a manifold to feed larger amounts of a single material or different ingredients in any desired proportions.

The slurry mill is an outgrowth of a unit designed by National Foam to mix napalm and gasoline.

EQUIPMENT . . . .

Polyethylene Rope: A 25% savings in cost over a comparable rope made of cotton is the claim that Plymouth Cordage Co. (Plymouth, Mass.) makes for its new polyethylene rope. The company foresees its use in chemical plants to mark off restricted, hazardous areas. The rope withstands chemicals, mildew and rot, but is not built to stand up under heavy loads or tough wear.

•

Tight Seal: The Foxboro Co. (Foxboro, Mass.) has brought out a new ball valve. Foxboro recommends the valve for working pressures up to 3,000 psi., suggests its use in meter manifolds, gauge lines, seal chambers, bleed-off connections, sampling connections and lubricator shut-offs. In the valve, a stainless steel ball closes into a machined conical seat.

•

Orlon Filters: Filtration Fabrics Division (Filtration Engineers, Inc., Newark, N.J.) is now marketing two Orlon acrylic fiber weaves for use in dry-separation equipment and industrial dust collectors. Filtration reports the material will stand up under strong acids, oxidizing agents, solvents, oils and weak alkalis under temperatures up to 300 F. Big feature claimed for the fabric for dust control: maximum air permeability and high retention of a wide variety of particle sizes.

•

Equation Solver: American Hydromath Corp. (New York City) reports a new electrical analogue computer to solve linear algebraic equations. The company claims that the solution is obtained immediately without any iterative process, either manual or automatic.

Put a packaging "floor" under your product

Asphalt tile is tough, and durable—*once it's installed.* But until it is cemented to a solid surface, this popular building material is subject to breakage.

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NEWS ABOUT LAH*

***(Lithium Aluminum Hydride)**

Of vital importance to all present and potential commercial users of LAH (Lithium Aluminum Hydride) is the news that LAH (Lithium Aluminum Hydride) purchased from Metal Hydrides, Inc., **may now be used without restrictions of a use license or payment of use royalties.**

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PRODUCTION . . . . .

FRAGILE SAMPLE takes cushioned ride from process to lab.

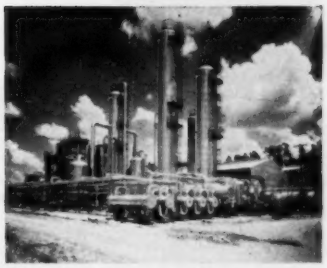
Communications Plus

Intra-plant communication can be time consuming, inefficient. In the case of Upjohn's new plant in Kalamazoo, Mich., the problem was a particularly knotty one for plant floor space totals more than 33 acres.

Upjohn's solution: It called in the Lamson Corp. (Syracuse) to design and install a pneumatic tube conveyor system. Now 21 stations throughout the plant are connected to a central operator; there are direct lines between departments where the flow of traffic is usually heavy. The company reports that samples can be sent to the lab in a matter of seconds, adds that mail and work orders are routed to their destination in the same time.

CENTRAL STATION connects with 21 others around the plant.

Girdler Process News



Synthesis gas plant

This unit at Mississippi Chemical Corporation manufactures high purity synthesis gas needed for the production of ammonia. Natural gas is the primary raw material. Superheated steam, used in the synthesis process, is produced by integrating steam generation with process functions. Thus the cost of a separate steam plant was saved.

Prilling tower

Final step in production of ammonium nitrate. The complete plant has various improvements in design and layout, and process combinations never before used. Proper coordination of countless details by Girdler was a major factor in low first cost of plant.

GIRDLER DESIGNS AND BUILDS

new synthetic nitrogen fertilizer plant for Mississippi Chemical Corporation

Mississippi Chemical Corporation assigned complete responsibility for engineering and construction of its new integrated plant to one experienced source . . . The Girdler Corp. Original cost was lower than estimates from other sources, and also ammonia, nitric acid, and ammonium nitrate are now produced with a lower unit energy input than in any other similar plant.

The plant is a complex one, involving production processes for hydrogen, nitric acid, ammonium nitrate, etc. This is one of the few high-pressure, catalytic-process ammonia plants in the U. S. Methods for safe handling of gases at pressures up to 15,000 pounds per square inch had to be worked out.

Girdler has broad experience in handling such complete "process packages". . . covering design and construction of process plants involving very high operating pressures, high temperature reactions, and corrosive substances.

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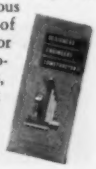

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BOOKS.....

The Physical Chemistry of Surface Films, by William D. Harkins. Reinhold Publishing Corp., New York, N. Y.; xvi+413 pp., $10.
A detailed treatise covering the author's experimental and theoretical studies in two important fields of physical chemistry—surface chemistry and solubility. A final section deals with the mechanism of emulsion polymerization, the subject the author was working on at the time of his death.

Bacitracin. Research Div., S. B. Penick & Co., 50 Church St., New York, N. Y.; 127 pp.
A review and digest of the literature up to and including Jan., 1952, focusing attention on the clinical usefulness of this antibiotic and on its potentialities as based upon its synergistic action with other antibiotics.

Briefly Listed

1951 INDEXES OF PATENTS, Superintendent of Documents, Government Printing Office, Washington 25, D. C.; cloth binding, $6; paper binding, $5.

1951 INDEXES OF TRADE MARKS, Superintendent of Documents, Government Printing Office, Washington 25, D. C.; cloth binding, $4.25; paper binding, $3.25.

MEETINGS...

Amer. Leather Chemists Assn., annual convention, New Ocean House, Swampscott, Mass., June 1-4.

Chem. Inst. of Canada, annual conf. & exhibition, Mount Royal Hotel, Montreal, June 2-4.

Assn. of Consulting Chemists & Chem. Engrs., annual spring outing, Westchester Country Club, Rye, N.Y., June 6.

Chem. Specialties Mfrs. Assn., mid-year meeting, Sheraton-Plaza Hotel, Boston, June 9-10.

Natl. Fire Protection Assn., annual meeting, Statler Hotel, N.Y., June 9-13.

Div. of Medicinal Chem., national chemistry symposium, Univ. of Virginia, Charlottesville, June 12-14.

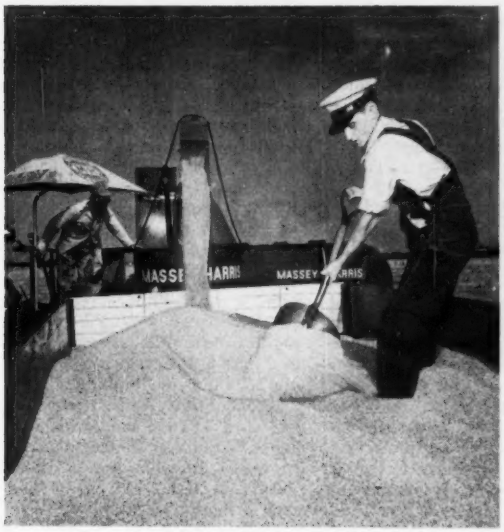
Natl. Fertilizer Assn., annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., June 16-18.

Div. of Analytical Chem., annual summer symposium, Michigan State College, East Lansing, June 20-21.

Forest Products Res. Soc., annual meeting, Schroeder Hotel, Milwaukee, Wis., June 23-25.

Mfrg. Chemists Assn., joint meeting with SOCMA, Greenbrier Hotel, White Sulphur Springs, W. Va., June 23-25.

136—S



COMBINE TO TRUCK: Harvested wheat receives . . . Chemical protection for safe storage.

Chemical Insurance for Stored Grain

Wheat fraction carriers for synergised pyrethrin insecticides, recently patented by Pillsbury Mills, have just been licensed to U. S. Industrial Chemicals.

USI is boosting protectant production in two plants, aims for big market in storage of '52's bumper harvests.

Perking foreign interest hints possible sub-licensing by USI abroad.

Unless it's the picture of the massive combine almost lost in an expanse of golden, waving grain, there is nothing quite like a shot of a bulging granary to typify the productivity of America's wheat belt.

But for the farmer, the well-filled storage bin doesn't mean he can sit back and ponder the color of his next Buick. He's frequently up against a problem honest sweat and long hours can't beat: How to keep that grain safe from weevils and insects until it's used.

U. S. Industrial Chemicals, Inc. (div. National Distillers Products Corp.) think's it's got the answer. USI is upping production at its Baltimore and Kansas City, Kan., plants of two insecticides for stored grain, Pyrenone* Wheat and Pyrenone Grain Protectants.

The carrier (or diluent) for the wheat protectant was patented† by Pillsbury Mills, Inc. (Minneapolis) only last February; Pillsbury has just granted USI exclusive license for use of the diluent.

Now USI has an even firmer grip on what it claims is the most effective chemical for safely halting weevil and insect damage to stored grain—a method well tested, and USDA-approved.

With ample manufacturing facilities and sufficient raw material supplies to meet American demands, USI is bending an eager ear to foreign cries for the chemicals. Pyrenone has been licensed in England for some time. And chances are that more licensing will be done soon, not only of Pyrenones, but on their use with the Pillsbury diluent, since USI has sublicensing powers on it.

Object of Interest: The object of all this has been available to the American farmer since last year. The wheat fraction diluent, a wheat dust derived from grain cleaning operations, was devised by George Wagner of Pillsbury, working with USI researchers. A patent was sought back in 1949; after further testing, USI decided to sell its wheat protectant with the new material last July, before the patent was granted.

In making the protectant, USI impregnates the carrier with 1.1% piperonyl butoxide, and .08% pyrethrins. The farmer adds the protectant at the rate of 75 lbs./1000 bushels of wheat, mixing it into the grain, or simply pouring it in at the feed end of a conveyor. Cost is about 2½¢ per bushel, and a season's protection is promised.

The Rub—and Appearance: USI has been making grain protectants for some time. With corn, barley, and similar grains, formulations containing a fibrous talc carrier were satisfactory. But such a mineral-based protectant applied to wheat faced two main objections: Millers thought they raised the ash content of the wheat too much, and grain so treated had difficulty passing Federal inspections which were largely based on "feel" and appearance.

Pillsbury, one of the leading millers, was vitally interested in a safe method for insuring the quality of its stored grain. So its researchers huddled with those of USI and worked out the wheat fraction carrier.

The Pyrenones, although not cheap, offer the key advantage of low animal hazard. They're used in 95% of the aerosol insecticides, and the Pillsbury

* Pyrenone is USI's trademarked name for piperonyl butoxide-pyrethrin combinations, tightly-patented insecticides introduced in 1945. Big advantage: very low toxicity to warm-blooded animals.

† 2,585,356.

136—S

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*Reg. U. S. Pat. Off.

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patent specifies piperonyl butoxide, pyrethrum, or rotenone.

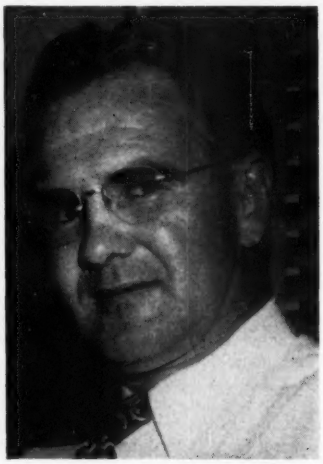
Although tests—largely conducted at Kansas State College—show good results with heavily infested grains, USI doesn't recommend its products in such cases. And it emphasizes that maximum benefits require good sanitation in the storage units.

Fumigation of stored grain is an effective treatment for grains already infested with insects. It's a low cost procedure, and the USDA has approved it. But fumigation won't work in many of the storage bins pressed into service by the farmer, and USI thinks that means a big opportunity for its Pyrenone protectants.

Percentage Payoff

The high wax content of Utah's Uinta Basin petroleums, a problem to most oilmen, is a blessing to Sure-Seal Corp. After a false start that went bust in '47, Sure-Seal is now on the way up, has a new product and eyes $600,000 gross sales this year.

Pelleted canning wax is Sure-Seal's (Salt Lake Air Base, Utah) just-introduced twist in home preserving waxes. The big advantage is that it saves the housewife the bother of chipping off small hunks of wax from a one pound block.



SURE-SEAL'S WALLIS: Second start with a wax works.

Sure-Seal is now producing 500,000 lbs of wax per month, turning out a variety of specialized wax compounds for industry, Government and the laboratory, in addition to its home canning products. And sales have been growing by $150,000 per year leaps since 1947 under the direction of chief Marvin Wallis.

Wallis sees $1 million gross sales by 1955, plans a $5 million dewaxing plant in the Uinta Basin. All this from shrewd utilization of the high (17% as compared to common 5%) wax content of the Utah crudes, currently pouring out at the rate of 25,000 bbl/day.

Sure-Seal, presently renting quarters, and still in the semi-experimental stage, is nonetheless .geared for large scale production work: Filling a 229,000 lb Government order for dipping wax, Sure-Seal turned out boxed wax at a 50,000 lb/day clip.

Second Start: Wallis started Sure-Seal on a $12,000 shoe-string at the end of World War II. The initial project failed, through lack of product control, in 1947, but Wallis began again a short time later.

As wax producer, blender, and marketer, Sure-Seal custom formulates to meet specific needs. Typical products: For the Government, a wax adapted to desensitizing explosives. For chrome platers, a strippable (easily peeled off) wax to protect areas not being plated. For college medical labs, waxes to preserve human brains for dissection and to hold virus until needed for study.

No-Air-Wrap, a strippable coating for quick-frozen poultry, is Sure-Seal's major production item, aside from the Government orders. Prices on the No-Air-Wrap compound vary from 16¢ to 48¢ per pound. The dip-coating waxes sell at about 8¢/lb., the specialized medical waxes about 52¢/lb.

Wallis figures strippable waxes offer the most room for wax-makers' expansion. And he thinks Sure-Seal will get a big share of what may be a 65-100 million pound market there.

•

Wash Less: Enterprise Paint Mfg. Co. (Chicago) is now marketing Staize-Clene, a line of maintenance finishes said to resist soiling. Formulated with Syncon (made under Johnson Wax patents), the new paint is also claimed to be easier to wash.

•

Fluoride Angle: Cook-Waite Laboratories, Inc. (New York) is offering a new dental polishing paste, containing 2% sodium fluoride. The new preparation is for professional application only.

•

Swelling Sponge Works: O-Cel-O, Inc. (Buffalo, N.Y.) has broken ground

for a $500,000, 12,000 sq. ft. concrete block and steel structure for synthetic sponge manufacture.

•

Skin for Metals: A plastic film for protection of metals is being shown at the British Industries Fair. Called Birlon, the film is transparent, and is said to withstand light stamping, yet be easily removed when necessary. Cellon Ltd. (Kingston-on-Thames) and Birmetals Ltd. (Quinton, Birmingham) developed the filming process, devised to prevent organic solvent and water damage, and protect metals through fabrication handling.

And in Amsterdam, Holland, N. V. Draka is making thin-walled pliable tubes of polyvinyl chloride to be used for somewhat similar protection: Drawn over a bar of metal and heated to 115C, the polyvinyl shrinks and coats the bar, providing a permanent protective film.

•

Super Service: The Seattle, Wash. fire department has added a new service. Now it not only puts out fires, it deodorizes the premises.

To kill the lasting odor that even a small fire can leave, the department is using Metazene aerosols. Boyle-Midway's (New York) Renovair is the preferred product; a 12 oz bomb (50-75¢) will deodorize 40-50,000 cu. ft.

•

Rol Rolls: Rol, long-heralded liquid detergent of Fels and Co. (Philadelphia) will be test-marketed in the East this summer.

•

TB Drugs Abroad: One TB drug slated for test under the Egyptian Public Health authority is Nicotibine Lepetit, a pyridine and isonicotinic acid hydrazine product of Lepetit laboratories, Italy. Chemifa Corp., representing Shering Corp., is distributing another isonicotinic acid hyrazide tablet, Ditubin.

•

Cal-Spray in Ala: California Spray-Chemical Corp., agricultural chemical manufacturer, has just opened a new plant in Troy, Ala.

•

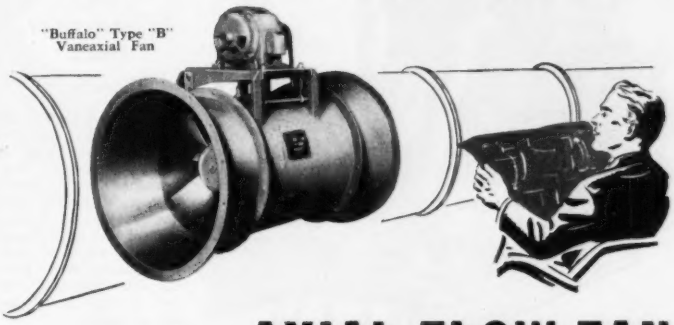
Easy Out: Molgard, a new mold release product, is now marketed by Garan Chemical Corp. (Los Angeles). Devised to speed polyester resin molding, it is available in quarts, gallon, and five-gallon containers.

•

Weevil Evils: USDA researchers find that present fumigant recommendations for control of weevil in stored grains are inadequate to halt the damage of immature insects. Larger doses of calcium cyanate, which ap-

"Buffalo" Tips on Getting the Best Service from your Fans

PICK THE FAN TO SUIT THE PLAN!



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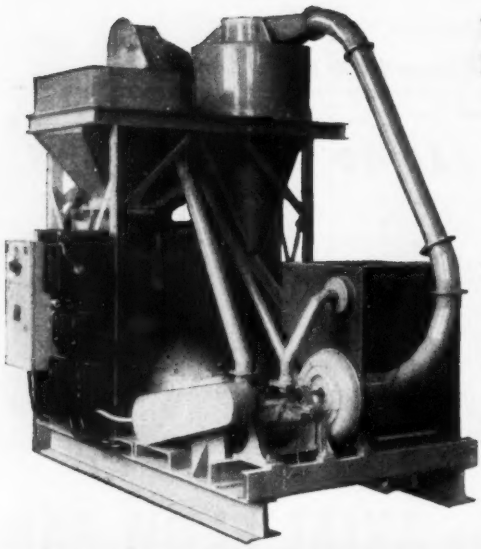

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SPECIALTIES. . . . .

pears to be top dust type fumigant, are suggested.

•

Floor Covering: New German product is a flooring material of chlorinated rubber made by Arnhemse Rubberfabriek Arufa, Arnheim. The covering has a foundation of rubber-based material 0.07 in. thick, on which a 0.05 in. layer of patented-process chlorinated rubber is pressed. Flooring, in four colors, is said to be impervious to acid, oils, mildew and to be inexpensive.

•

Scrub Aid: New scouring cloth of nylon, called Dazzl, is being introduced in the Midwest. The new cloth is woven of 210 denier fibers by Walton-March (Chicago), is priced at $1.00 for two 9 by 12 inch cloths. Uses are in dishwashing, general household work.

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Tonsorialist Touch: Thomas, the hair-grower is putting chlorophyll in his hair restoring preparations.

•

Soft Sole: The Rubatex Division of Great American Industries has begun production of Rubatex Crepe, a shoe sole material, in its Spencer, West Va. plant. Facilities were formerly operated by Monarch Rubber Co., Baltimore.

•

Chemical Aid Welcome: Editorial in Arkansas Gazette (Little Rock, Ark.) discusses recent loss of 50,000 acres of cotton treated with a pre-emergence weed-killer, expresses hope that the loss won't affect development of this type of agricultural chemicals.

"It would be a bitter blow to the cotton industry in these labor short times if a development so promising were retarded by a single mysterious and so far regional incident," the editorial said.

•

Advice to Planters: A combination insecticide-fungicide seed treatment has been worked out by the New York Agricultural Experiment Station (Geneva) for cutting maggot and decay loss in beans, corn, and squash.

Recommended mixture contains a fungicide such as Arasan SF, plus an insecticide like lindane, dieldrin, or chlordane.

PICTURES IN THIS ISSUE:

Cover (top) — Hans Basken, McGraw-Hill; Cover (bottom) — Shelburne Studio; p. 11 (bottom) — Intl. News Photo; p. 53 — Hercules Powder Co.

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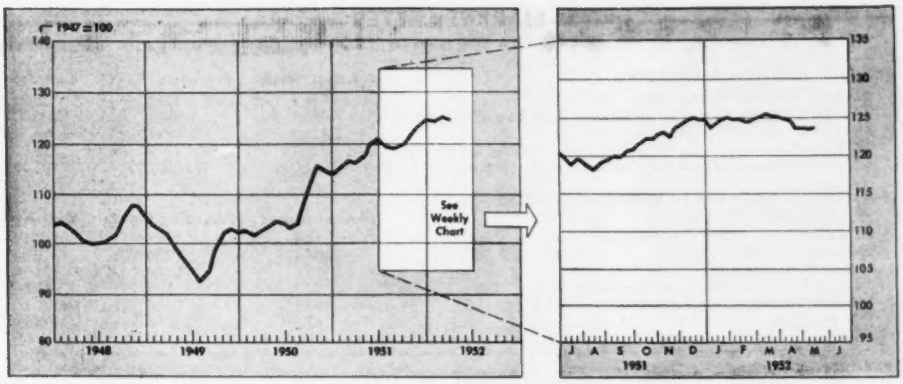

CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries

MARKET LETTER

Despite price control our free-market economy is still with us. Not a few industry spokesmen have been saying that, insolently snapping fingers at OPS, then hastily pointing to one indisputable fact:

Wobbly prices over the last eighteen months show that price control has relatively little to do with economic stability. Some prices have remained stable, some have risen, others fallen.

The Senate Banking Committee's approval last week of a bill to extend price, wage controls nine months (to March 1, 1953), and to stretch allocation, priority, defense loan authority twelve months (to July 1, 1953) indicates the snaps weren't loud enough.

But at least one group is satisfied—almost. The US Chamber of Commerce, champion thumper for complete decontrol, had insisted that controls, if extended, should not be continued longer than next March; is convinced the national economy "should be in position to provide amply for both defense, civilian needs."

The Defense Materials Procurement Administration last week lost its power to allocate blister copper. NPA, in taking over, said DMPA was allocating too much of this copper raw material for production of copper sulphate, other copper chemicals that are relatively in ample supply: "Conservation is the keyword, copper shortage is acute," said NPA.

Then with a suddeness that left "controllers" spinning, acting Director of Defense Mobilization John R. Steelman came out with a new system of flexible price ceilings for imported copper.

In a nutshell the new plan does this: 1) Maintains existing two price system for copper—domestic, 24½¢/lb., imported, 27½¢/lb. 2) Allows private U.S. buyers to buy all the copper they can get from foreign producers (meaning Chile), but not more than International Materials Conference allocation to the U.S. of 130 thousand tons per month from free world markets. 3) Permits them to pay any price they want for foreign copper, pass on a substantial part of their increased costs.

Twenty-four hours later the President, adding his bit, authorized removal of enough copper (22 thousand tons) from the nation's stockpile to cover outstanding allocations already issued for June.

It was emphasized that stockpile copper will be used only to make

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Industries Output Index (1947=100)	124.1	124.0	120.0
Bituminous Coal Production (Daily Average, 1000 Tons)	1,392.0	1,338.0	1,600.0
Steel Ingot Production (Thousand Tons)	2,124.0	2,104.0	2,053.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	233.3	229.2	233.9
Chemical Process Industries Construction Awards (Eng. News-Record)	$7,951,000	$82,050,000	$9,006,000

MONTHLY INDICATORS—WHOLESALE PRICES (1947, 48, 49=100)	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	113.4	113.8	117.1
Chemicals and Allied Products	104.8	105.4	111.5
Industrial Chemicals	116.8	117.0	120.9
Drugs and Pharmaceuticals, and Cosmetics	92.7	93.1	95.8
Fertilizer Materials	109.8	109.6	105.4
Oils and Fats	42.6	47.3	107.6

up the deficit caused by the Chilean copper workers' strike, Chile's embargo of copper shipments because of price differences.

The same mixture of cheers and tears is evident in the industry's market places at home this week. It all depends on what side of the counter you're on.

Tributyl phosphate's new price per pound is 51¾¢—a brutal 11¾¢ slash by prime producer Commercial Solvents. Equally drastic is the 20% cut (now 42¢/lb. cl., f.o.b. Strang, Tex.) on dimethyl formamide (DMF), Du Pont's "close approach" to the universal solvent.

Both reductions can be interpreted as evidence of a free market. In other words, the hoped-for (or dreaded) buyers' market is here.

Producers are plainly reverting to the age-old device to lure customers.

The United Nations, also judiciously shopping around for bargains, found a good one last week. With DDT schedules semi-officially pegged around the 50¢/lb. level, the UN reached over the counter, came up with one manufacturer's low (shade under 36¢/lb.) bid on a-not-to-be-sneezed-at order.

In excess of three million pounds was the amount of DDT called for, enough to whet any producer's appetite.

One sharp UN condition to get a better price: Delivery is to be made in the DDT off-season.

The Department of Commerce last week jumped the second quarter export quota of glycerin from 800 thousand to a fantastic 5.8 million pounds. Reasons for the 5 million pounds blow-up: Plenty in the U.S., foreign countries need it for producing explosives.

The entire export quota, however, is just an insignificant (less than 3%) puff of the total U. S. production of glycerin, now running above 210-million pounds a year.

Other last minute quotas set by OIT: copper sulfate, second quarter 1952, 18 million pounds; bismuth salts and compounds, 130 thousand pounds (metal content) for each of the second and third.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending May 26, 1952

DOWN

	Change	New Price
Molasses, Blackstrap, Feed grade, gal., tanks	$.01	$.21
Antimony Oxide, bgs, cl, frt. alld.	.035	.39

	Change	New Price
Shellac, leached, bone dry, bgs., 1500 lb. lots	$.01	$.48

All prices per pound unless quantity is stated

STUMPS FOR NAVAL STORES: Top dog productionwise.

No "Market," Little Demand

Naval stores* producers are still seeking a daily pricing system to replace the outlawed Savannah exchange.

Wood naval stores now account for over half rosin, turpentine output, but industry still looks to gum for price.

Demand for both rosin and turpentine is off. Gum producers have USDA price support, but wood producers have more versatile operations.

There is divided opinion among gum turpentine and rosin producers whether they are in a dying industry or on the threshold of new and larger outlets. That was clearly evident at the recent annual meeting of the American Turpentine Farmers Association Cooperative at Valdosta, Ga.

There is no disagreement, however, upon the sad state of the present naval stores market, and of the confusion caused by the lack of an open market for trading. Last week turpentine farmers were planning to adopt a market system of their own to replace the traditional Savannah naval stores exchange, now virtually inoperative since the Government brought antitrust proceedings against it.

The Savannah exchange had for years been the market on which the industry based prices. A stable, nationally recognized market price is necessary in the case of turpentine, distributed principally in small containers on consignment; and for rosin, at least desirable.

Boomerang Reform: Oddly, the Government action closing the exchange was at the behest of the turpentine and rosin farmers, who complained that prices were not representative of actual market conditions and were often "rigged." The U.S. Department of Agriculture has instituted a market reporting system giving the range of prices obtained by both gum and wood processors on their sales, but the industry feels that this is not a satisfactory price since the information is voluntary, and the USDA has no way of checking sales.

Under the newly proposed system, fashioned after the UDSA set-up with

* Rosin, turpentine, terpene alcohols and terpene hydrocarbons produced from species of Southern pine by (1) tapping living trees (gum naval stores); (2) solvent extracting and steam distilling top wood and stump wood (wood naval stores); (3) destructively distilling dead and stump wood (DD naval stores); (4) collecting by-product of sulfate paper processing (sulfate naval stores).

158-S

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Send for the "Annual Report of Mines and Mining of Oklahoma", which describes in detail Oklahoma coal analyses. This report will be mailed promptly by the Oklahoma Planning and Resources Board.

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Calenders, New Rubber Calenders, 6x12", Johnson Joints, 7½ HP motor, Complete. Eagle Industries, 108 Washington St., NYC.

Centrifugal, 36"x40", Bird, Continuous, Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

Centrifugals, Bird 48"; Rub. Covered. First Machinery, 157 Hudson St., N.Y. 13, N.Y.

Dryer, Link-Belt Roto-Louvre, 1106-35. Heat & Power Co. Inc., 70 Pine St., N.Y. 5.

Dryer; P.&S. 76' L; 13' w; S.S. belt. First Machinery Corp, 157 Hudson St., N.Y. 13, N.Y.

Dryer, Rotary, 10'x90'x9/16". Heat & Power Co., Inc., 70 Pine St., N.Y. 5. Hanover 2-4890.

Dryer, Vacuum Shelf, 13 shelves 59"x78", Condenser and pump. Consolidated Products, 18 Park Row, N.Y. 38, N.Y. BArclay 7-0600.

Dryers, 2 Blvk 32x90 dble. drum, SS accessories, complete. Eagle Industries, 108 Washington St., NYC.

Evaporators; Sextuple Eff. 58,200 sq. ft. First Machinery Corp., 157 Hudson St., N.Y. 13.

Filters, all sizes and types. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Filter Press, 24"x24" aluminum, 24 chambers, Consolidated Prods., 18 Park Row, N.Y. 38.

Filter Press, 30"x30", iron, Sperry, steam heated. 30 chambers. Consolidated Products, 18 Park Row, N.Y. 38, N.Y., Barclay 7-0600.

Filter Presses, all sizes and types. Process Industries, 305 Powell St., Brooklyn 12, N.Y.

Granulator, Allis Chalmers, Ball, 4'6"x7', iron lined. Used 100 hours. Consolidated Products, 18 Park Row, New York 38, N.Y. BA 7-0600

Mill, New Rubber Mills, 6x12, 6x14, 6x16"; Johnson Joints, Complete. Eagle Industries, 108 Washington St., NYC.

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Mills, Raymond #5047 high side roller, ea. w/two 50 h.p. 3/60/2200 V motors, piping (4). Consolidated Products, 18 Park Row, N.Y. 38.

Mills, Traylor tube, 5'x22', 5'x20', 4'6"x18'6", 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, New York 38, N.Y.

Mixer, 110 gal. stainless Patterson Vacuum, Consolidated Prods., 18 Park Row, N.Y. 38.

Mixer, 200 gallon B.P. Jacketed, m.d., Consolidated Products, 18 Park Row, N.Y. 38.

Mixer, Lab, BP Vacuum, 7½ gal. jktd, MD. Complete. Eagle Industries, 108 Washington St., NYC.

Mixer Lab.—Day S.S. Jktd. Vac. 5 gal. Equipment Clearing House, 289 10 St., Bklyn 15.

Mixers, horiz. ribbon, 14'x7'6"x6', jktd., 600 cu. ft. (2). Consolidated Products, 18 Park Row, N.Y. 38, N.Y. BArclay 7-0600.

Pebble Mills; 8'x8', Porcelain lined. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Propane Mixing Plant, Complete. Heat & Power Co., Inc., 70 Pine St., New York 5. HA 2-4890.

Pulverizer, Raymond High Side 5 roll, Consolidated Products, 18 Park Row, N. Y. 38, N.Y.

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Tank, 12,000 gal. Rubber lined steel Goodrich Triflex, 20 p.s.i. with 2 manholes. This unit brand new & has never been installed. Immediate delivery. Price $4,800.00. F.O.B. Akron, Ohio. Helene Curtis Ind., 4401 W. North, Chicago.

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MISCELLANEOUS

Chlorophyllin Information

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Medical Literature—U. S. to date. European mostly 1916-1935. Translations not generally available in U.S. Many pharmaceutical products suggested. Copies for sale.

M4321 Chemical Week
520 N. Michigan Ave., Chicago 11, Ill.

some additional features, dealers would report all sales to consumers, which would be the basis of a daily report on weighted average figures. The report would be compiled and published for information only. The information and reports of sales by dealers would be supplied to a certified public accountant, who would be sworn to secrecy and bonded, thereby relieving dealers of the fear that their sales would be listed for competitors.

The American Turpentine Farmers Association Cooperative is also considering the possibility of spot and futures markets.

Half the Picture: But establishing again a price line is only one of the problems facing gum producers; building up the number of consumers is just as vital. Here they are competing with wood naval stores producers for business, and along with wood processors, are confronted with a current lack of demand.

Actually wood producers have now achieved number one position in output of naval stores, and for the industry to look to gum for a market price is a tail-wagging-the-dog situation. But traditionally gum producers have set the price, and traditions in trading are hard to toss aside.

Gum products, being classified as agricultural products, are protected by Government price supports, level this year being 90% of parity. The current price of gum rosin is about $7.50 per cwt. while that of wood rosin, about $7.00. Gum rosin is supported at about $7.48, with incidental costs for such as insurance running about 20¢, so when the market price falls below $7.28, it's cheaper for a farmer to put his material under Government loan than to sell it. Hence wood rosin is actually setting the price today. A similar situation holds for turpentine.

The principal reason gum products can sell at all against wood naval stores when there is a considerable price differential is again tradition. Gum naval stores have been around a lot longer than wood materials, and various consumers—some of them remembering back to the days when the wood products often were of a poorer quality than gum—are convinced that they are inherently better for their purposes. Wood producers disagree.

Slumping Market: Basic to the marketing woes of both factions of the industry is the falling off in major rosin-consumption markets — paper, soap, and paint and varnish—and in the demand for turpentine as a paint thinner. And with domestic demand off, producers cannot turn to foreign consumers, who normally take half of U.S. production, because that market has been ruined, at least temporarily, by the effects of the war.

Normally over 400,000 barrels of rosin should go into paper and paper size, but with paper and paper board running considerably below full capacity, there doesn't appear too much likelihood of a big pickup soon.

The drop in soap demand seems to be more permanent. It too used to be a 400,000-barrel-per-year outlet, but the low price of fats coupled with the rise of synthetic detergents has shaved it to under 100,000 in 1950-51 and less than 60,000 in 1951-52.

Use of rosin in paints and varnishes, including ester gum and synthetic resins, is off what it used to be before the war. Here, new resins have in part displaced rosin; and the absence of large quantities of Chinawood oil—necessary in many formulations—at a low price has cut use.

Turpentine, most of which is sold over-the-counter as a paint thinner, has been to some extent priced out of the market for a time. In the dizzy days of wartime demand, it rose as high as $1.25 a gallon, and substitute thinners moved in. Oldtimers say this always happens when turpentine gets above 50 cents, and have no fear. It has been dropping down into that range, and will come back again.

No Support, But . . .: Wood naval stores producers, though they don't have a guaranteed floor on price, are in a lot better spot than gum producers. Not only are they a lot bigger, by and large, but they have more versatile operations. Of perhaps eight producers in the field, three have about 90% of the productive capacity. An estimate of what part of that chunk can be attributed to each runs something like this: Hercules Powder, 40%; Newport Industries, 30%; and Crosby Chemicals, 20%.

Hercules is one good example of what can be done with the materials derived from old pine stumps. In addition to turpentine and rosin themselves, it has a large number of products derived from rosin and turpentine, perhaps the most glamorous being the insecticide toxaphene. The price for the basic products can dip well below what would be a profitable margin for a gum producer before the company will be squeezed, for if it isn't making money in one market, it will make and sell more of other, upgraded products.

Gum producers apparently feel that their future lies in the same direction. For at their recent convention, those who could find anything to be cheerful about, were hopeful that research would uncover new products and new outlets for their products.

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11-p. brochure giving research data on dialkyl hydrogen phosphites and trialkyl phosphites in regard to their physical and chemical properties, typical reactions, uses, and potential applications as additives, stabilizers or plasticizers. Selected bibliographies are included. Virginia-Carolina Chemical Corp., 401 East Main St., Richmond, Va.

Saran Rubber

8-p. bulletin on saran rubber, a corrosion-resistant material used for tank linings and other applications, contains tabular data on the material's physical properties and resistance to various chemicals and solvents, as well as illustrations of current uses. Dow Chemical Co., Midland, Mich.

Equipment

Motors

35-p. booklet comprising over 100 case histories of industrial applications of "Lifeline" motors in the fields of chemicals, textiles, petroleum, lumber, metalworking, paper, food, mining, and machine and production tools. For each case history the booklet states the particular application problem involved, the motor choice for the job, and the results. Westinghouse Electric Corp., Box 2099, Pittsburgh, Pa.

Heat Dryer

24-p. booklet on "multi-louvre" dryers, contains information on the dryer's design and construction features, basic operating principles, dimensions and uses in the chemical, food and fertilizer industries. Typical layouts and a two-page psychrometric chart are included. Link-Belt Co., 307 Michigan Ave., Chicago, Ill.

Scale Catalog

28-p. condensed scale catalog covering the firm's line of standard scales, carries complete specifications, spot illustrations and necessary information on each scale. Organized according to types of weight indication, the catalog reviews dial scales, balance indicators, counting, predetermined weighing, counter and hopper scales, and many others. Howe Scale Co., Rutland, Vt.

Dust Filters

4-p. bulletin describing the firm's unit-type filters as a means for providing "source" control of plant dust, and thus for best controlling dust from individual scattered sources. The bulletin notes main features, applications, specifications and advantages. Dracco Corp., Harvard Ave. and East 116 St., Cleveland, Ohio.

Packaging Guide

20-p. bulletin covers major steps involved in acquiring maximum service from the use of multiwall paper shipping sacks. Factors discussed: storing, filling and closing bags, palletizing bags, handling of filled bags, etc. Bemis Bro. Bag Co., 408 U. Pine St., St. Louis, Mo.

Constant Temperature Equipment

112-p. catalog describing and illustrating the company's complete line of test and measuring equipment for laboratory and production use. Included here are water baths, sterilizers, ovens, bacteriological incubators, electric furnaces, etc. The Electric Hotpack Co., Inc., Cottman Ave. at Melrose St., Philadelphia, Pa.

General

Radioactive Measurements

1-p. bulletin alphabetically listing standardized definitions of 58 of the most commonly used words in the radioactive measurement field. Radiation Counter Labs., Inc., Nucleonic Park, 5122 West Grove St., Skokie, Ill.

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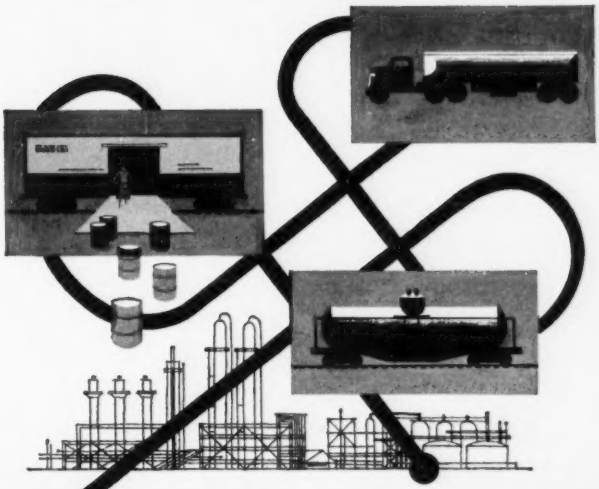

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